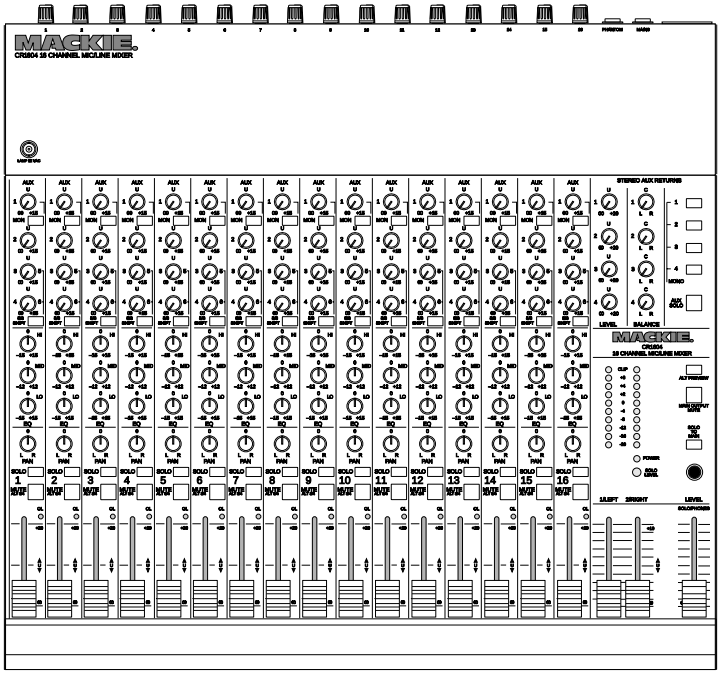
Go To Bulletins

MACKIE®

CR1604

16-CHANNEL MIC/LINE MIXER



SERVICE MANUAL

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820-171-00

Page 3 is interactive

HOME

SERVICE ON THIS EQUIPMENT IS TO BE PERFORMED BY
EXPERIENCED REPAIR TECHNICIANS ONLY
CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE

CAUTION *AVIS*

RISK OF ELECTRIC SHOCK
DO NOT OPEN
RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE THE COVER (OR BACK)
NO USER SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED PERSONNEL

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR EVITER LES RISQUES DE CHOC ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE. AUCUN ENTRETIEN DE PIECES INTERIEURES PAR L'USAGER. CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE.

AVIS:POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, N'EXPOSEZ PAS CET ARTICLE A LA PLUIE OU A L'HUMIDITE.

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UN PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS LAISSER AUCUNE PARTIE A DECOUVERT.

This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION :Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant las limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le réglement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio energy and, if not installed properly and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Le symbole éclair avec point de flèche à l'intérieur d'un triangle équilatéral est utilisé pour alerter l'utilisateur de la présence à l'intérieur du coffret de "voltage dangereux" non isolé d'ampleur suffisante pour constituer un risque d'éléctrocution.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Le point d'exclamation à l'intérieur d'un triangle équilatéral est employé pour alerter les utilisateurs de la présence d'instructions importantes pour le fonctionnement et l'entretien (service) dans le livret d'instruction accompagnant l'appareil.

HOME

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All boards

INTRODUCTION

SERVICE ON THIS EQUIPMENT IS TO BE PERFORMED BY
EXPERIENCED REPAIR TECHNICIANS ONLY
CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE

This manual contains basic service information. It is essential that you have a copy of the user's manual as this contains the complete operating instructions.

SERVICE TECHNICAL ASSISTANCE

Mackie Designs, Service Technical Assistance, is available 8AM - 5PM PST, Monday through Friday for Authorized Mackie Service Centers, at 1-800-258-6883. Feel free to call with any questions and speak with a carefully-calibrated technician. If one is not available, leave a detailed message and a qualified Mackoid will return your call asap.

DISCLAIMER

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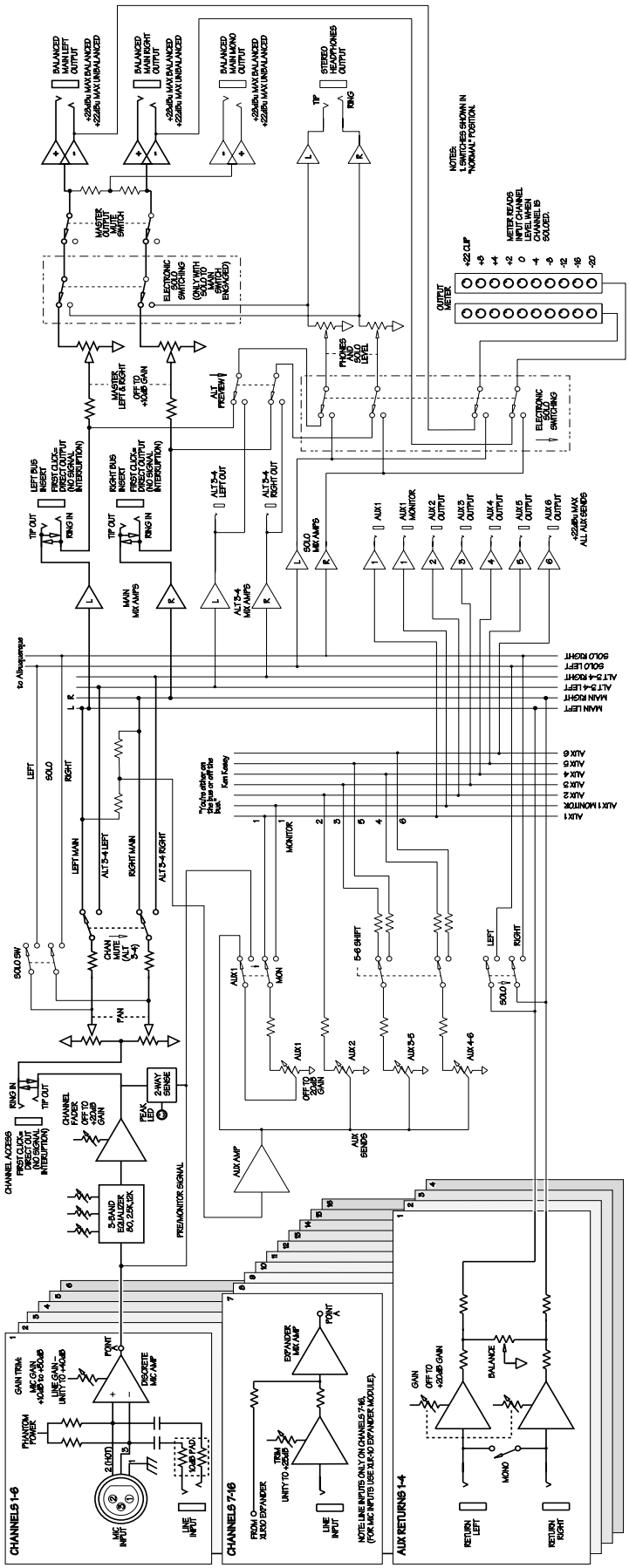
BLOCK DIAGRAM



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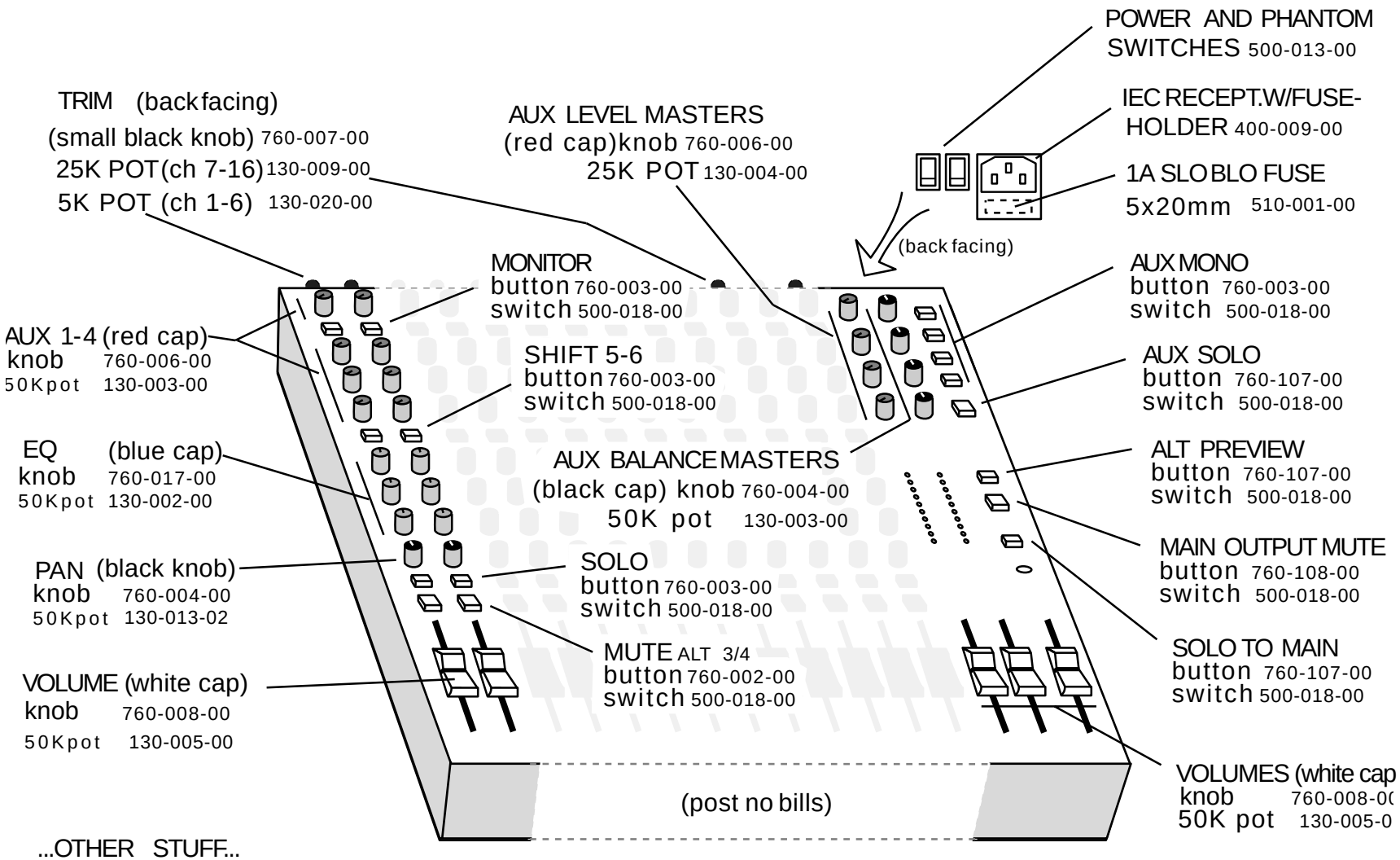


...OTHER STUFF...

LED'S
RED RUDE 304-002-00
RED 304-001-00
YELLOW 304-003-00
GREEN 304-004-00

LAMP SOCKET
BNC 400-010-00

LINE CORD 6' IEC
10A 640-001-00

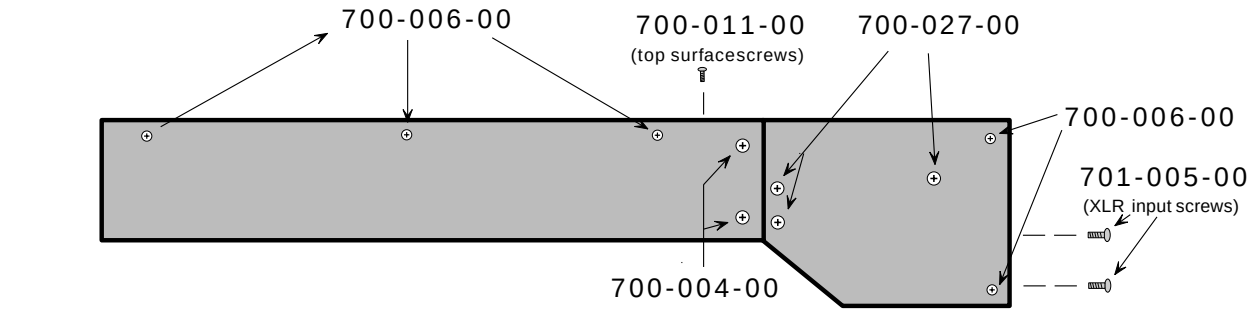
XLR FEMALE JACK
400-223-00

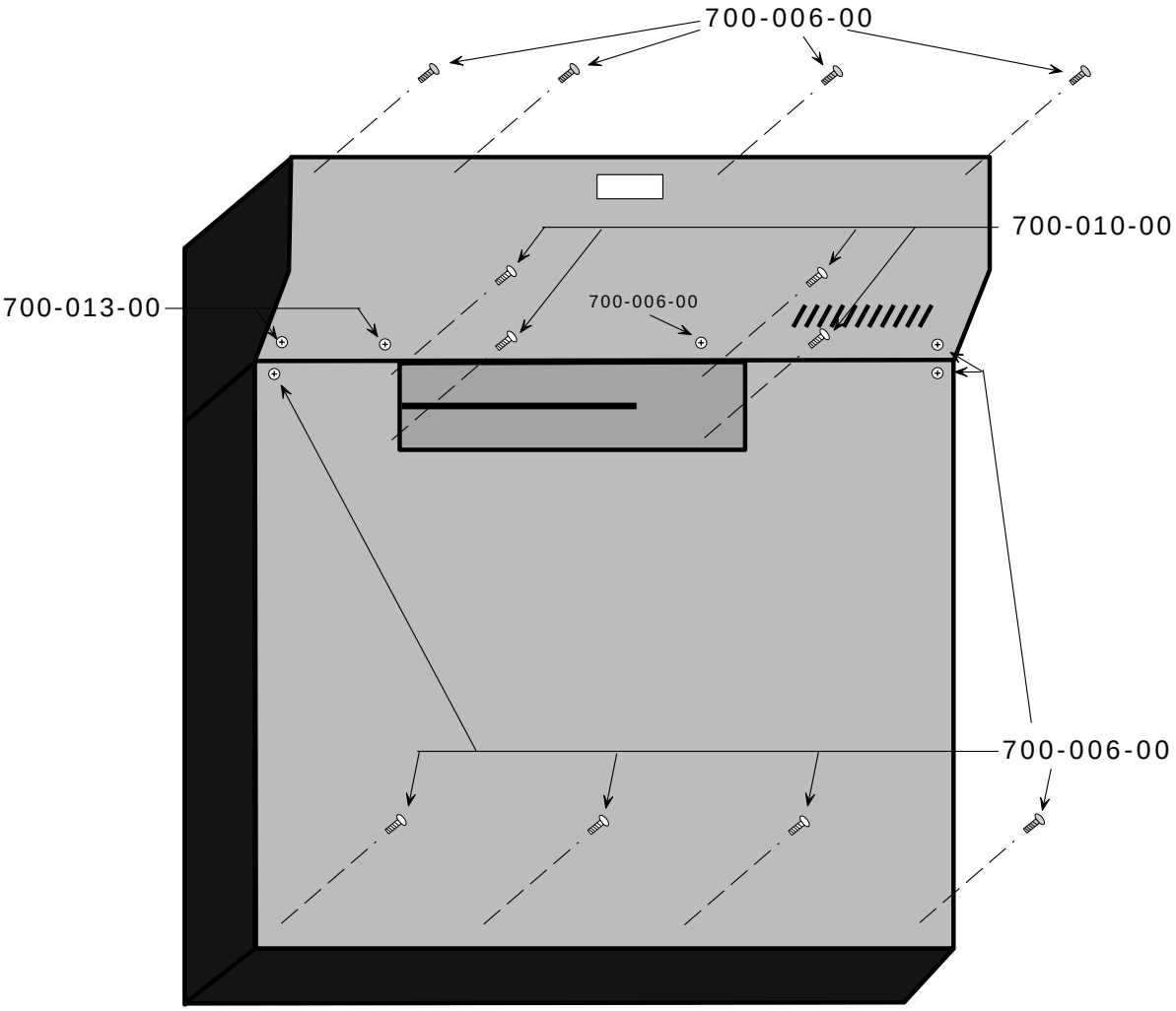
1/4" FEMALE JACK
400-214-00

RACK EARS (PR)
550-005-00

OWNER'S MANUAL
820-001-00

Version 2.(
05/99

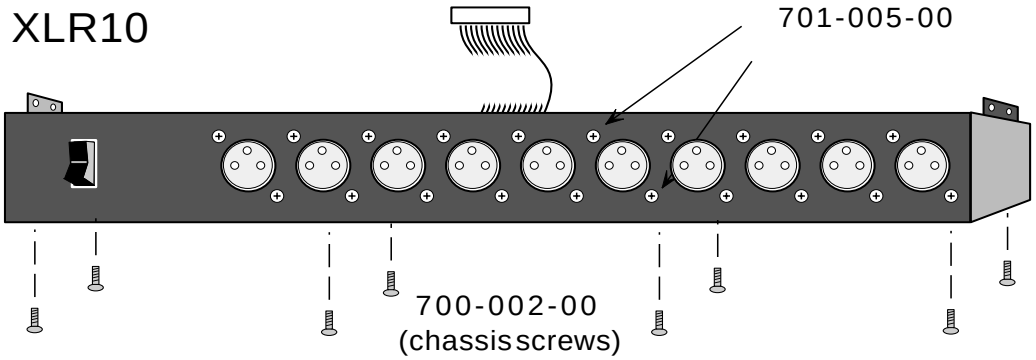




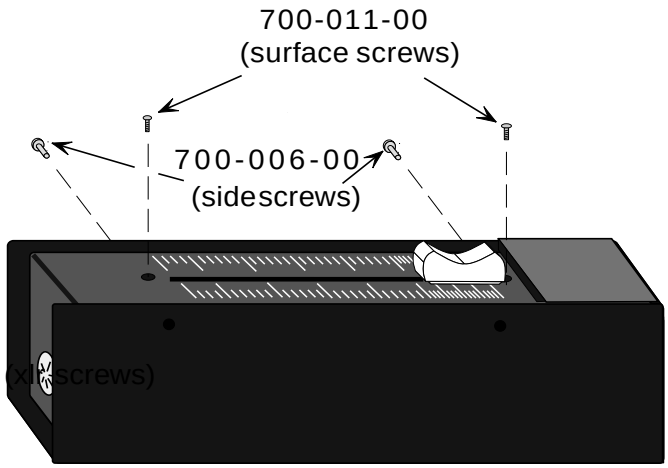
Version 1.0
6/95

HOME

XLR10

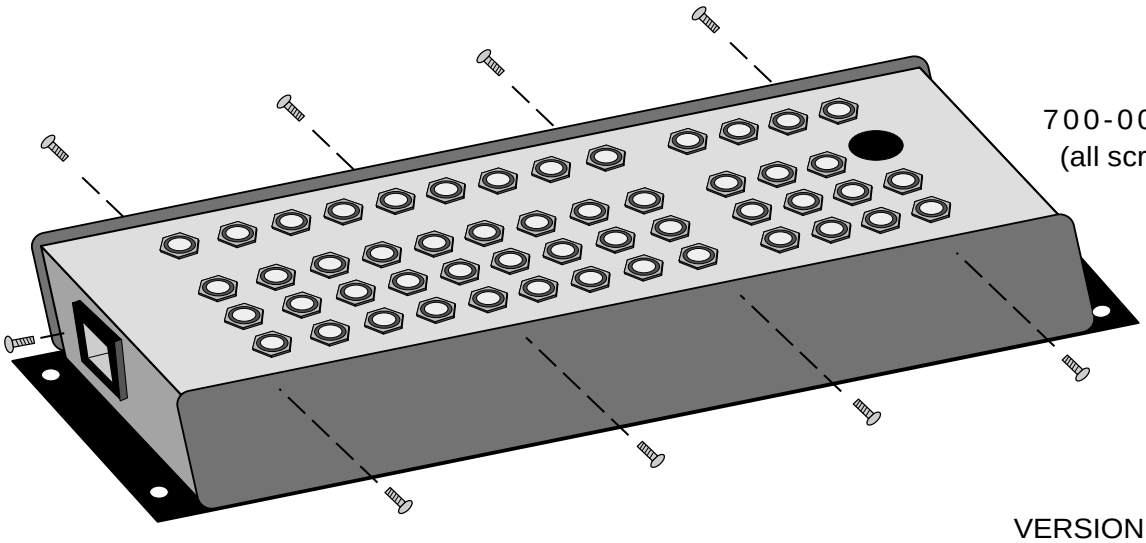


REMOTE FADER



Remote
Fader

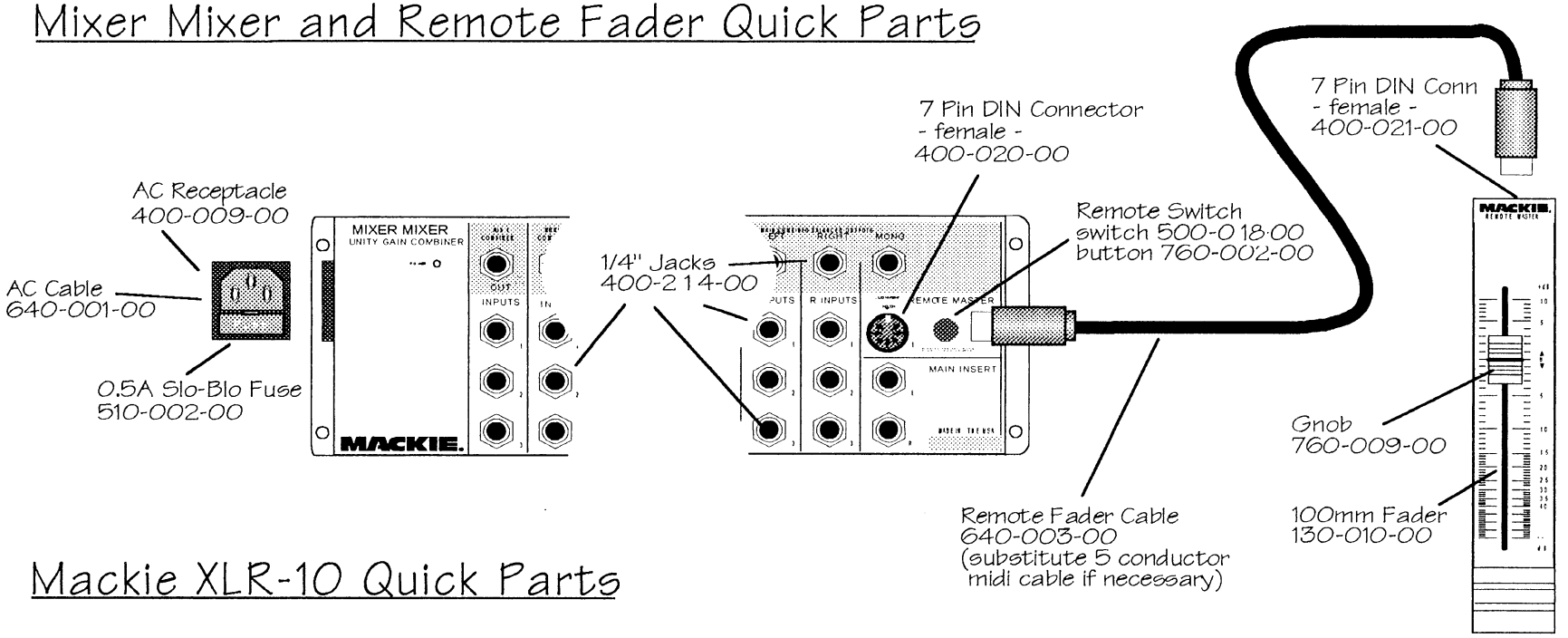
MIXER/MIXER



VERSION 1.0 6/95

HOME

Mixer Mixer and Remote Fader Quick Parts



Mackie XLR-10 Quick Parts

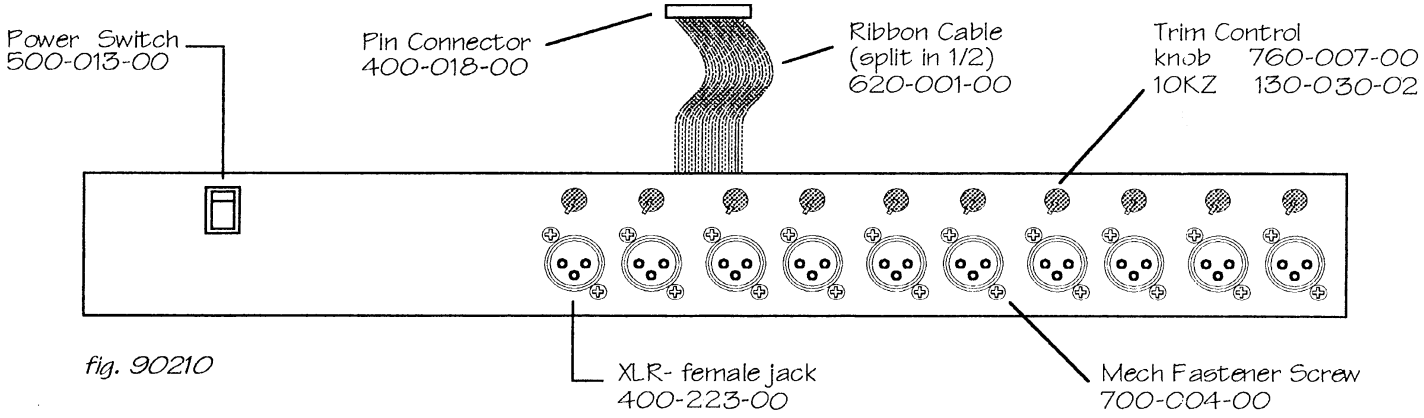


fig. 90210

5/99

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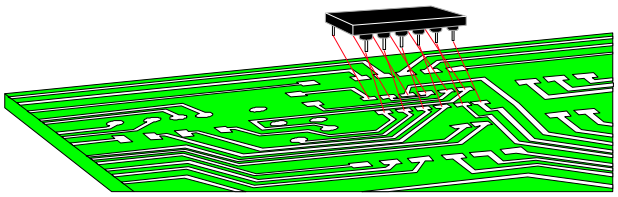
MACKIE.



THE MIXER FIXER • MACKIE DESIGNS

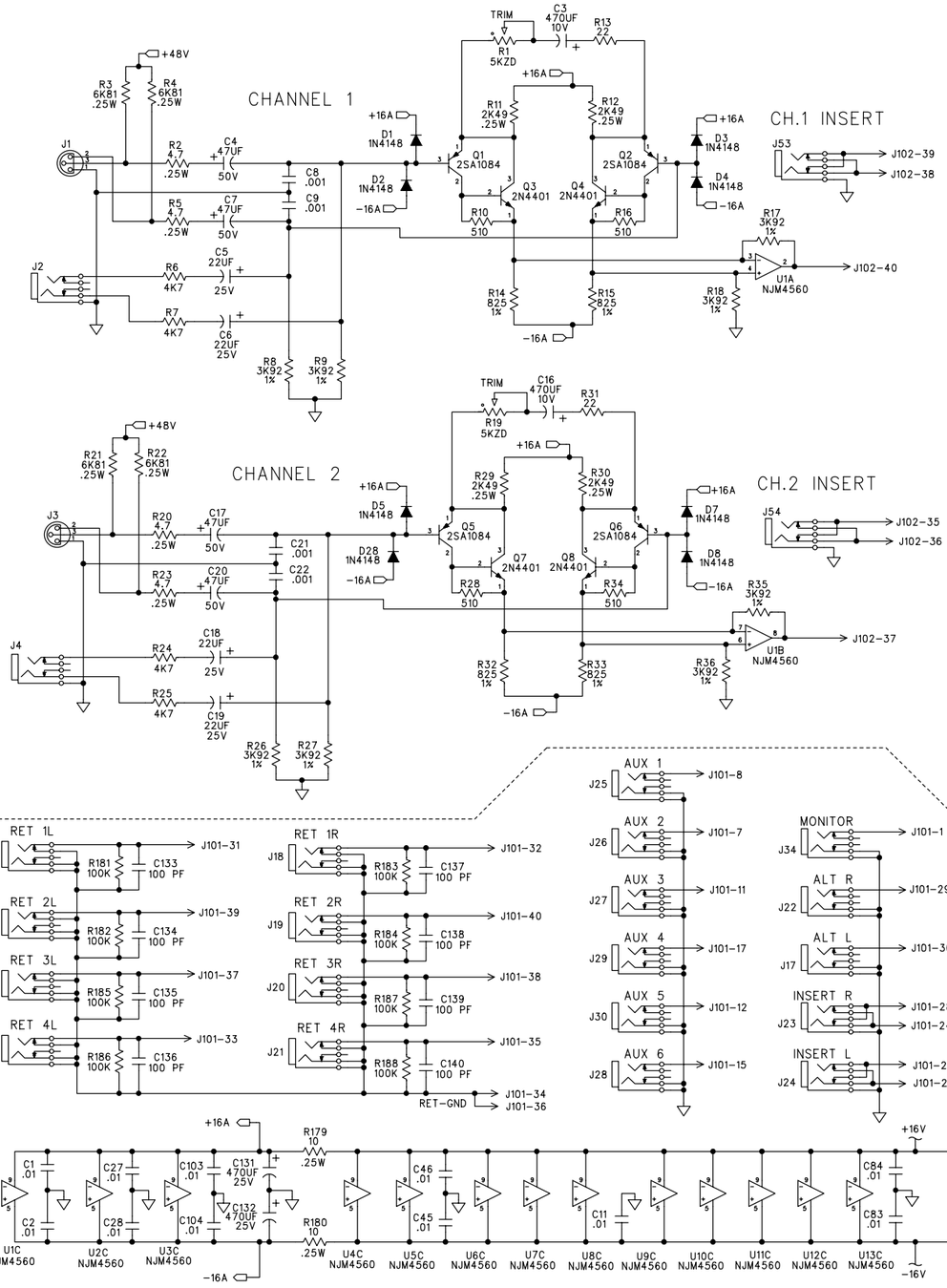
CR-1604 THERMAL SHUTDOWN

Model:	1604, mainly ser#'s in the 35,000 to 55,000 range.
Symptom:	Gets hot, shuts off, especially with XLR-10.
Cause:	Voltage regulators not properly seated to chassis (heatsink).
Fix:	Reseat Regulators.
Notes:	Some may have TO-220 case regulators with totally plastic packages. We recommend using the 7815 / 7915 with a metal tab for better thermal conduction. Remember to use mica insulators and heatsink compound.

HOME

DWG. NO.	SHT	REV:
990-002-00	1	N

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
	M	INCORP. ECO'S 49,271,307,368,370 401,402,436,501 AND 546.	KR		2-9-95
	N	INCORP. ECO'S 427 AND 555.	KR		4-13-95



610-004-00 WIRE, ORN 4.5
610-003-00 WIRE, RED 4.0
450-002-00 PCB, CR-1604 POD
040-001-00 CABLE ASSY, POD/PWR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: DECIMALS: ANGLES:
±NA .XX ±.01 ±NA
.XXX ±.005
MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: KR	2-9-95
CHECKED:	
ISSUED:	
ENG:	
MFG:	

MACKIE. Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
CR-1604 POD

SIZE D | DWG. NO. 990-002-00 | REV. N
SCALE: NONE | SHEET 1 OF 2

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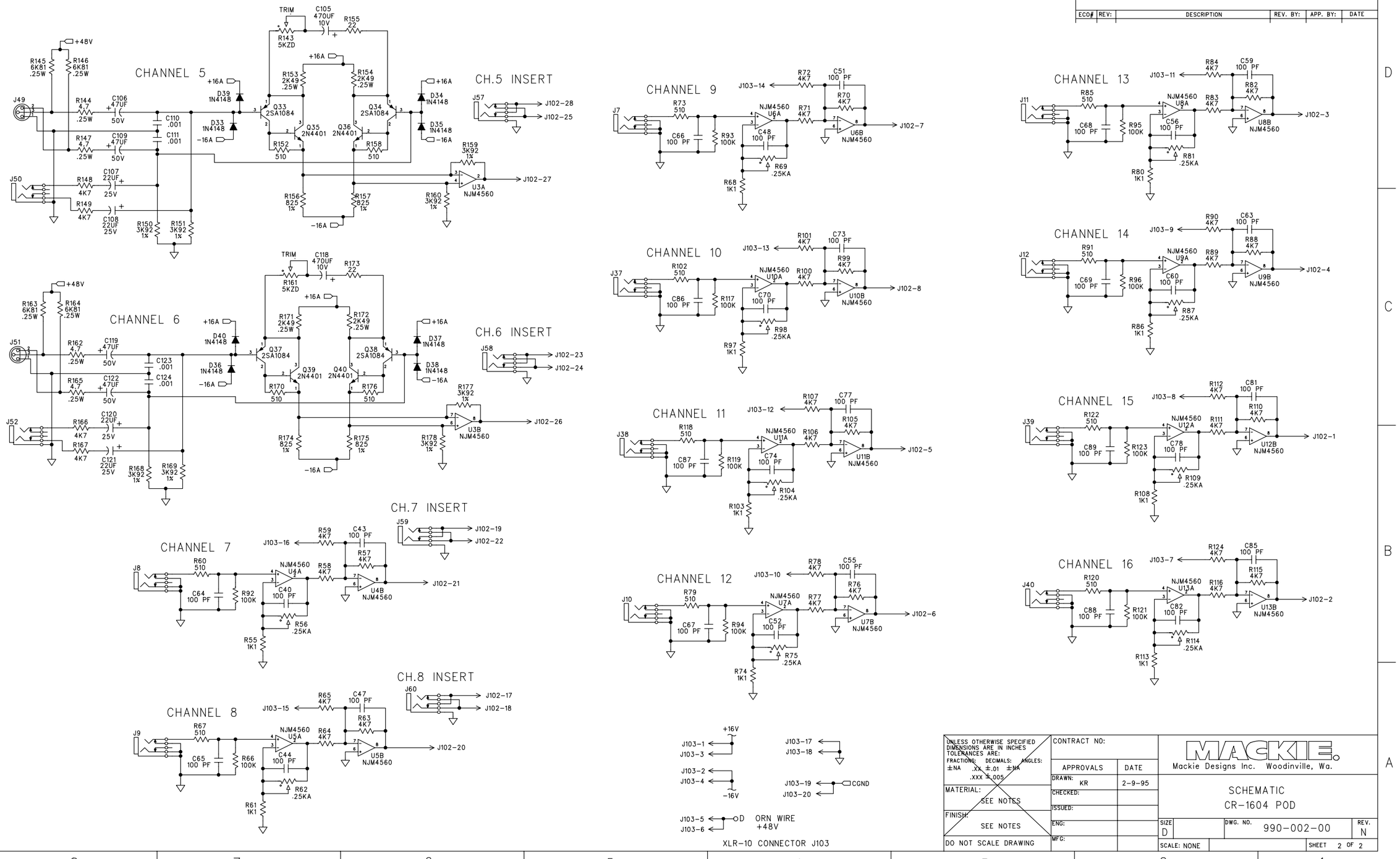
BACK



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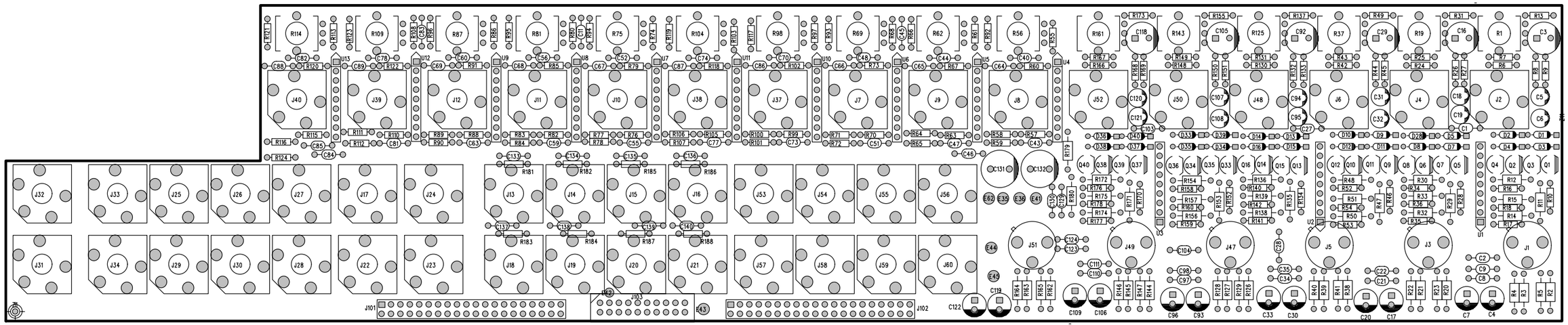

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XLR-10 Installation

❶ First make sure that the CR-1604 is turned off. Flip it upside down with the jacks facing you (there is no need to actually remove the pod) and remove the small connector cover near the pod's center. Save the cover and screws by taping them to the bottom of the mixer.

❷ Remove the pod's rubber feet.

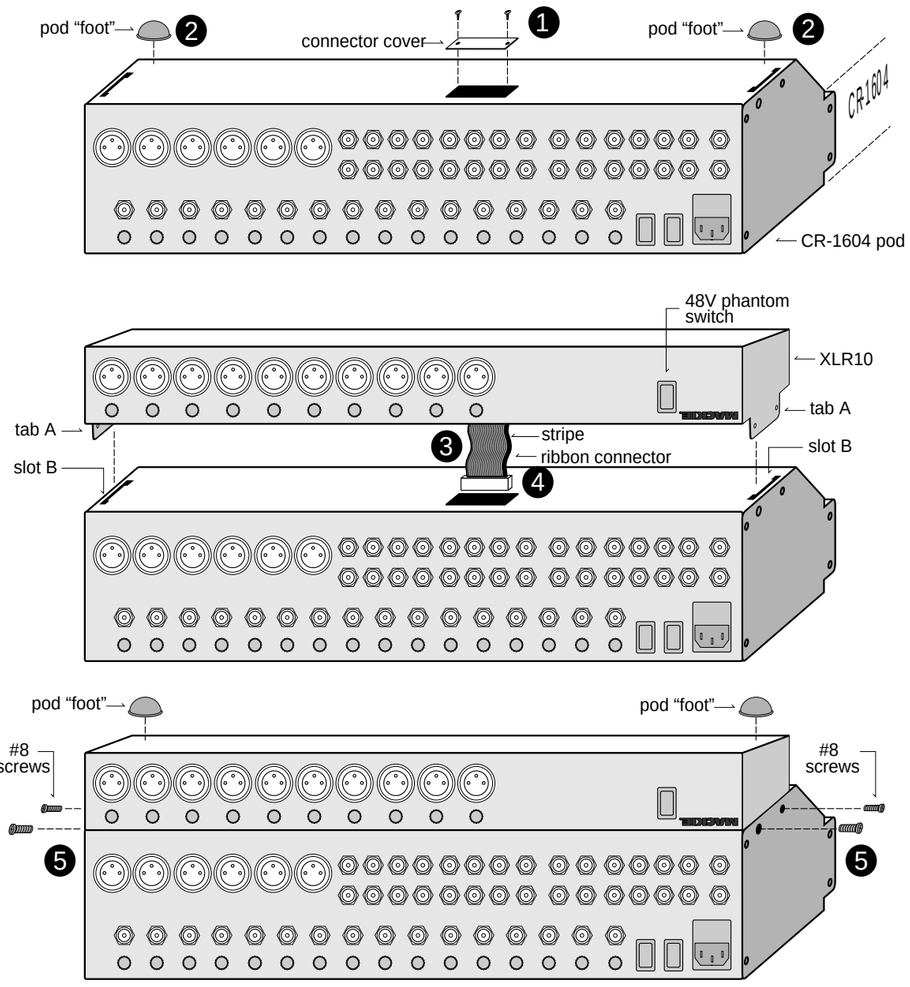
❸ Install the ribbon connector which extends out of the XLR10 by pressing the plug onto the exposed pins. Make sure that the stripe on the ribbon is on the side closest to the XLR 10's phantom switch (the right side in our drawing).

❹ As you lower the XLR10 towards the CR-1604 pod, work the excess ribbon cable back into the XLR10 by wiggling it gently.

❺ Slide the tabs on the sides of the XLR10 into the slots on the top of the CR- 1604 and secure them with the four #8 screws provided. Don't push on the screws while attaching them, since doing so may dislodge the mounted nuts on the inside of the pod.

❻ Install the new pod feet.

Happy mixing!



Operating Instructions

When you combine the CR-1604 with the XLR10 you can use the added mic inputs by themselves or, if you're starved for inputs, you can use both mic and line inputs simultaneously.

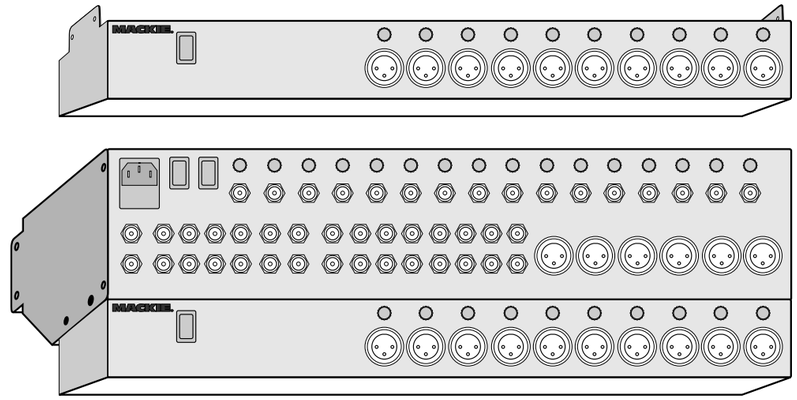
In other words, with the XLR10, you actually get 10 more inputs. On Channels 7 through 16 only, the XLR mic inputs can be used with the existing line inputs. Each has its own sensitivity control.

Set the sensitivity controls as you normally would. Put the channel into SOLO to read its operating level on the main output meter.

1. Adjust the mic sensitivity control first .

2. With the mic placed where it will normally operate in relation to the acoustic source, start at minimum (fully counterclockwise), then turn the gain up until you get a reading of around 0dB on the meter.

3. Finally, adjust the line input sensitivity until you get the desired balance between mic and line signals.



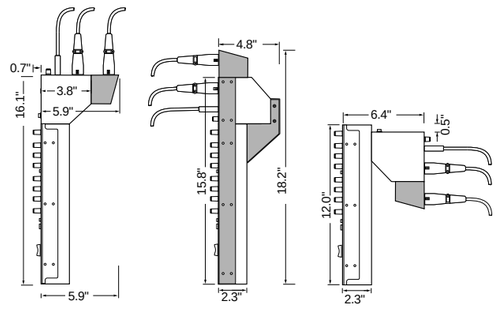
Famous XLR10 Interview Questions

Q. Can the XLR10 be used in all of the three pod variations?

A. Yes, see the drawing below.

Q. Can the XLR10 be used with anything other than the CR-1604?

A. No, it utilizes the internal power supply of the CR-1604 and is not free standing.



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990-001-00	1	K

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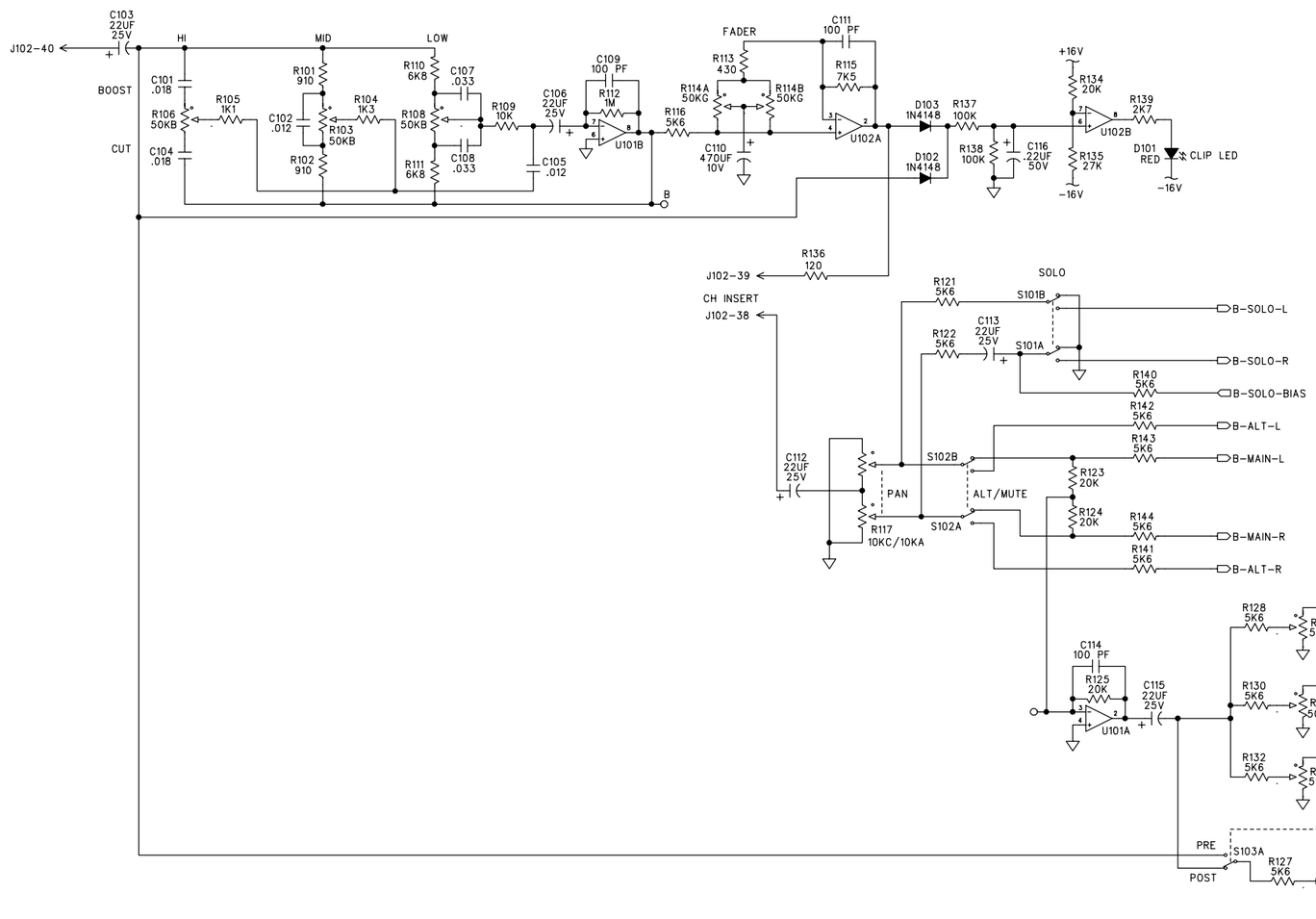
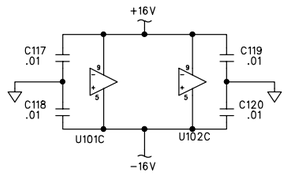
	K	INCORPORATED MISC. PCB REFINEMENTS	KR		4-26-95





CHANNEL 1

(CHANNELS 2-8 ARE SIMILAR)

J102-9
J102-10
J102-11
J102-12
J102-13
J102-14
J102-15
J102-16

706-009-00 LED SPACER .440
760-002-00 BUTTON SW 9X9 MM
760-003-00 BUTTON SW 9X5 MM
760-003-00 BUTTON SW 9X5 MM
760-003-00 BUTTON SW 9X5 MM

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA
MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: KR	2-17-95
CHECKED:	
ISSUED:	
ENG:	
MFG:	

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SCHEMATIC
CR-1604 MAIN

SIZE	DWG. NO.	REV.
D	990-001-00	K

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BACK

DWG. NO.	SHT	REV:
990-001-00	9	K

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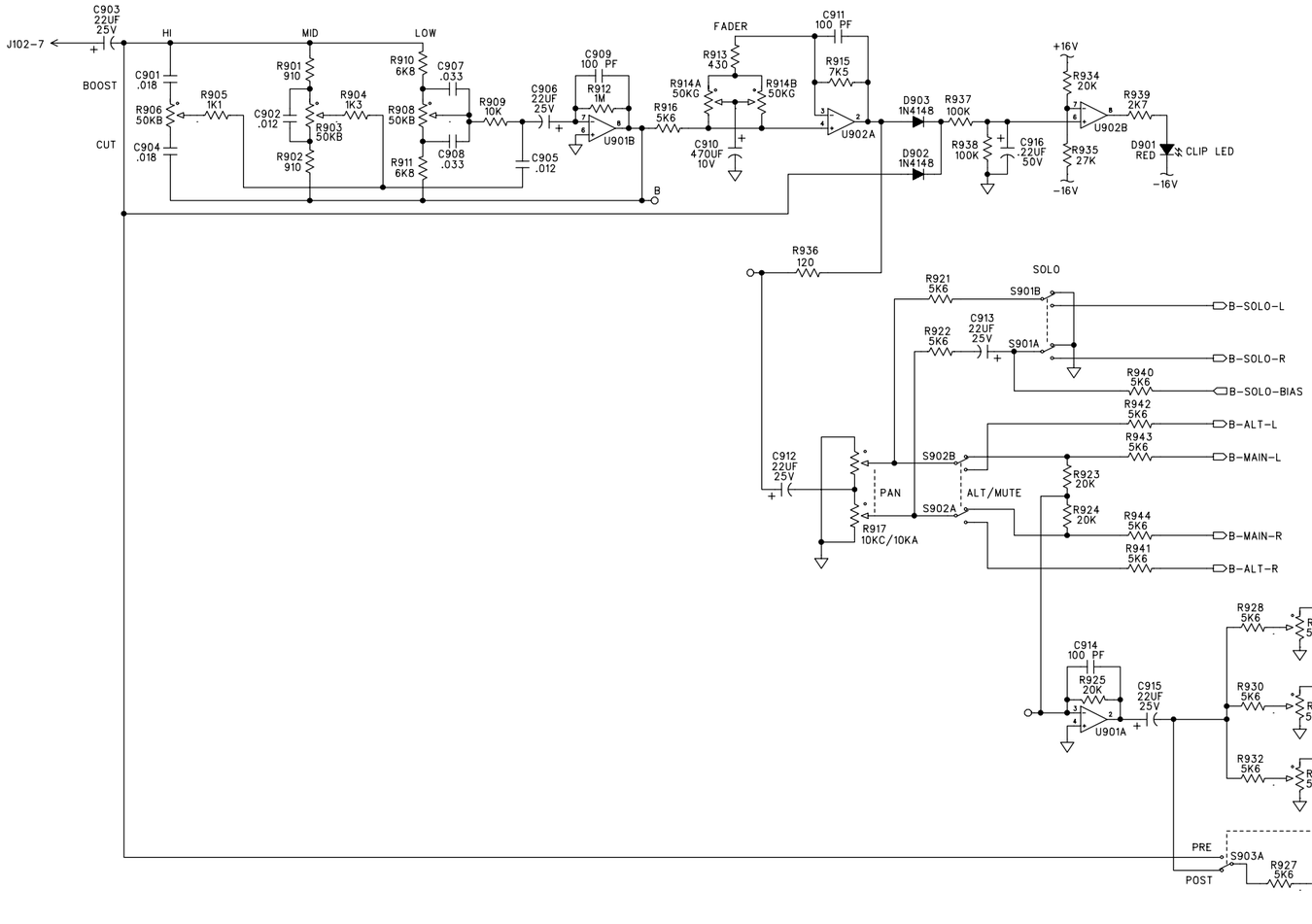

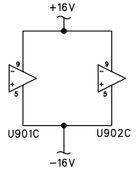

CHANNEL 9

(CHANNELS 10-16 ARE SIMILAR)

706-009-00 LED SPACER .440
760-002-00 BUTTON SW 9X9 MM
760-003-00 BUTTON SW 9X5 MM
760-003-00 BUTTON SW 9X5 MM
760-003-00 BUTTON SW 9X5 MM

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA
MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: KR	2-17-95
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ISSUED:	
ENG:	
MFG:	

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SCHEMATIC
CR-1604 MAIN

SIZE	DWG. NO.	REV.
D	990-001-00	K

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990-001-00	17	K

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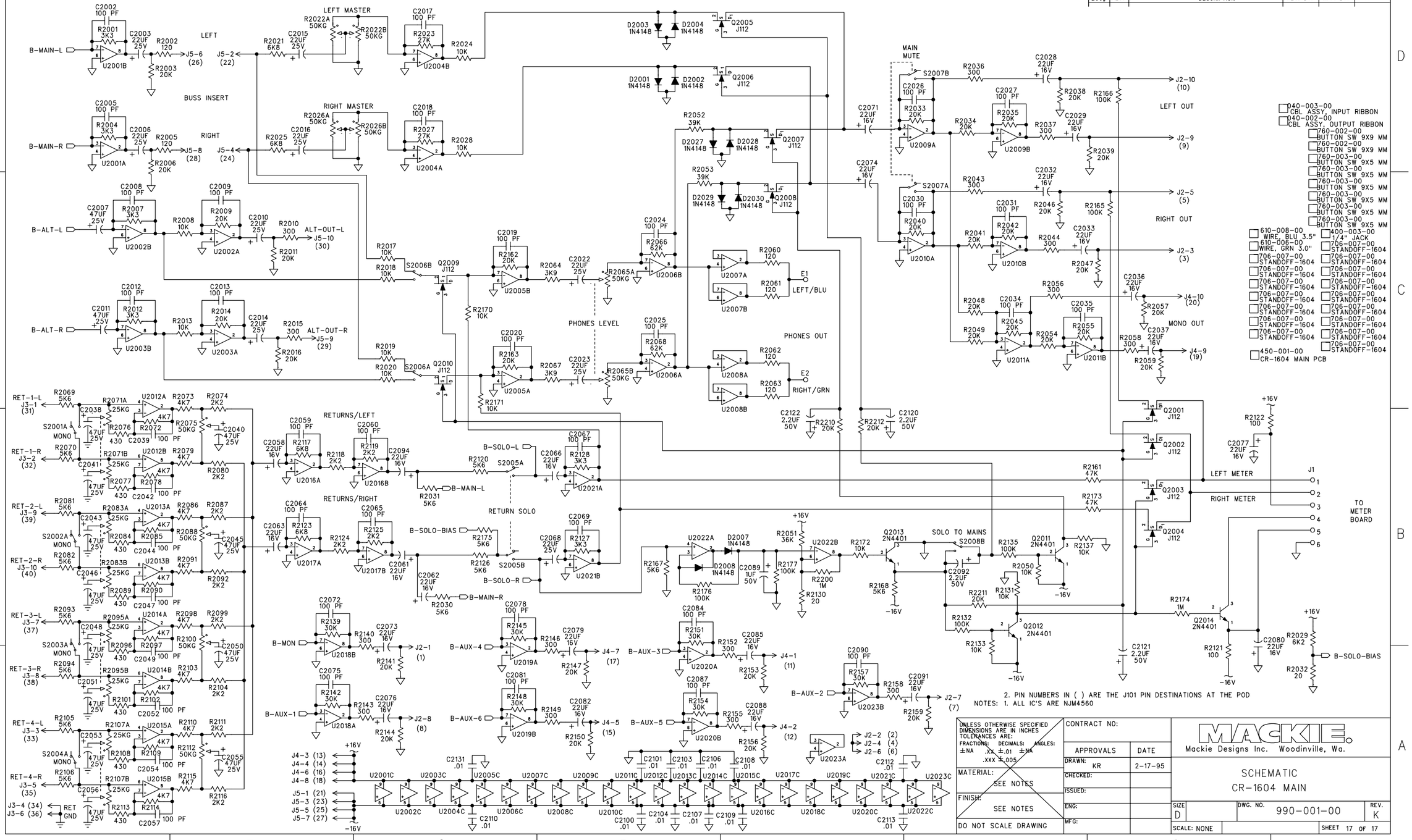

D040-003-00
CBL ASSY, INPUT RIBBON
D040-002-00
CBL ASSY, OUTPUT RIBBON
760-002-00
BUTTON SW 9X9 MM
760-002-00
BUTTON SW 9X9 MM
760-003-00
BUTTON SW 9X5 MM
760-003-00
BUTTON SW 9X5 MM
760-003-00
BUTTON SW 9X5 MM
760-003-00
BUTTON SW 9X5 MM
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BUTTON SW 9X5 MM
760-003-00
BUTTON SW 9X5 MM
610-008-00
WIRE, BLU 3.5"
610-006-00
WIRE, GRN 3.0"
706-007-00
STANDOFF-1604
706-007-00
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STANDOFF-1604
706-007-00
STANDOFF-1604
450-001-00
CR-1604 MAIN PCB

2. PIN NUMBERS IN ( ) ARE THE J101 PIN DESTINATIONS AT THE POD
NOTES: 1. ALL IC'S ARE NJM4560

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: DECIMALS: ANGLES:
±NA .XX ±.01 ±NA
.XXX ±.005

MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
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CHECKED:	
ISSUED:	
ENG:	
MFG:	

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SCHEMATIC
CR-1604 MAIN

SIZE	DWG. NO.	REV.
D	990-001-00	K
SCALE: NONE	SHEET 17 OF 17	

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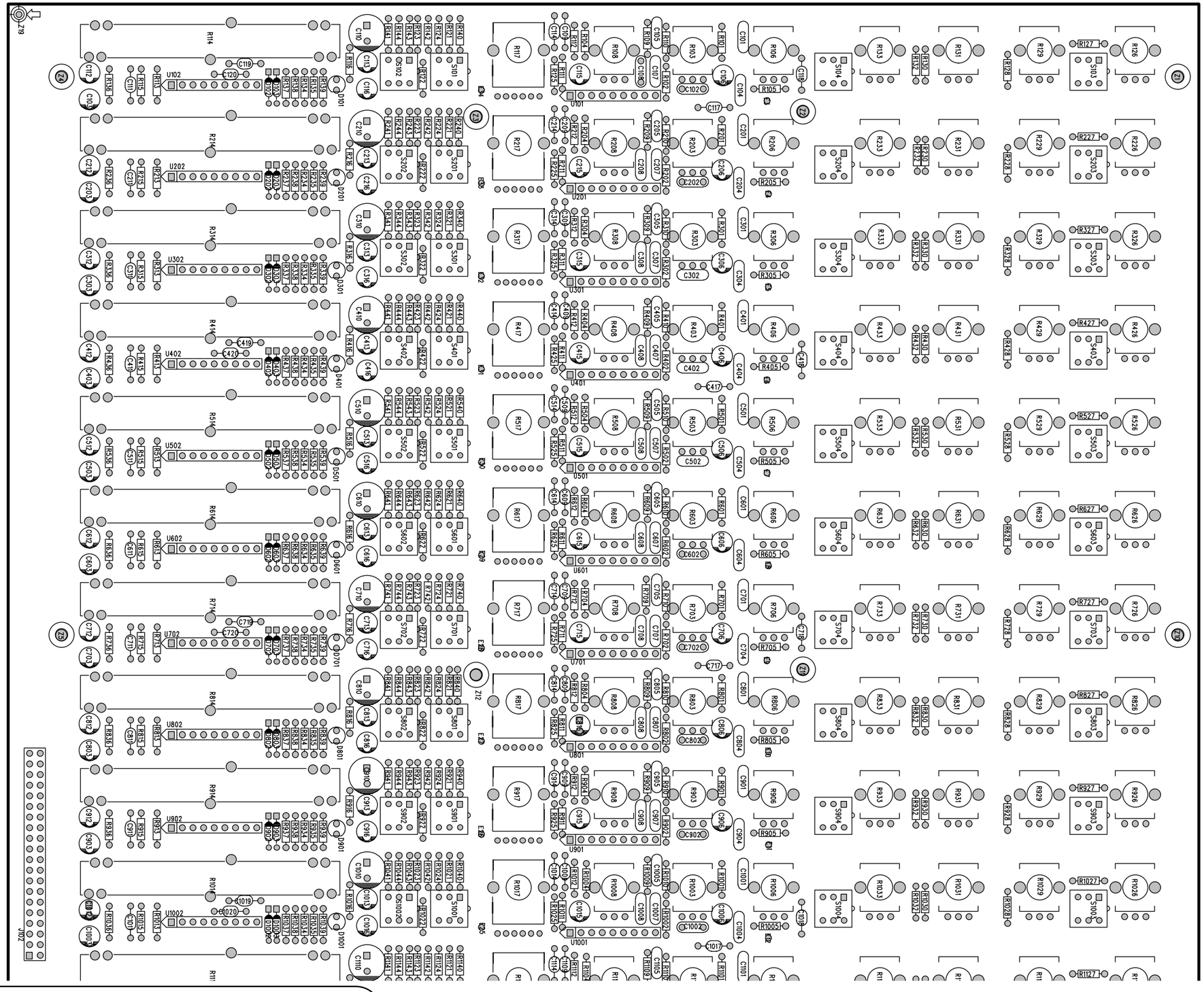

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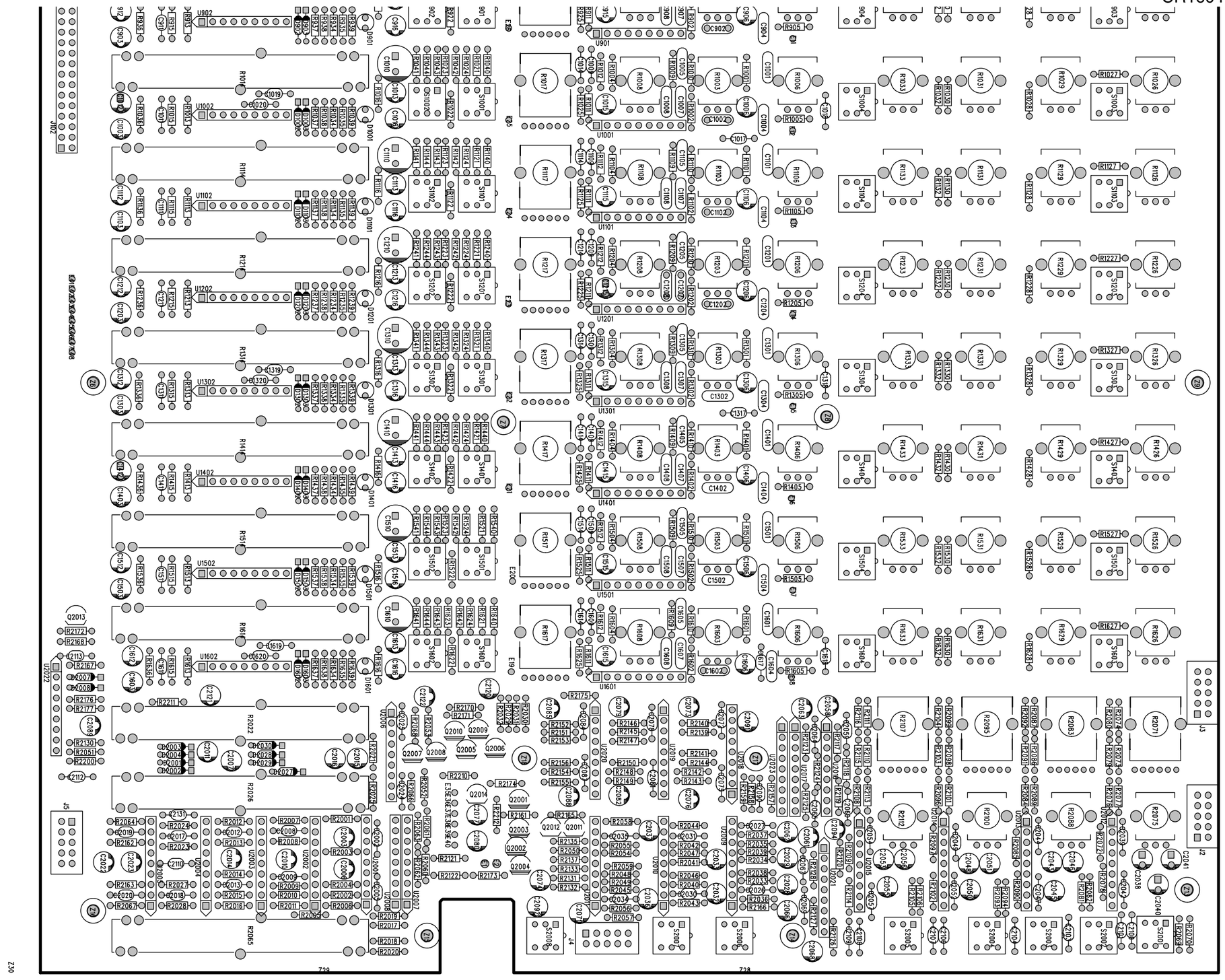

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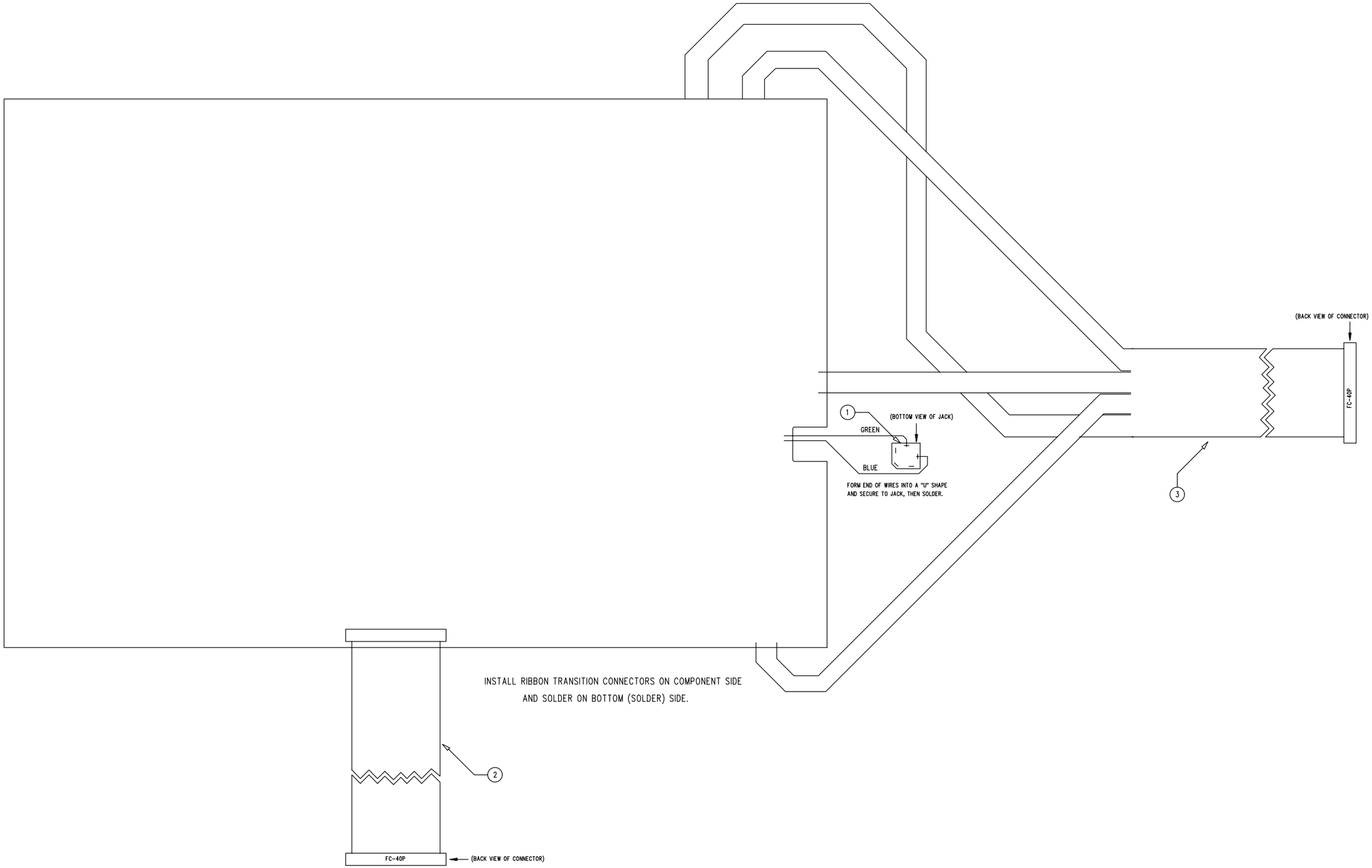

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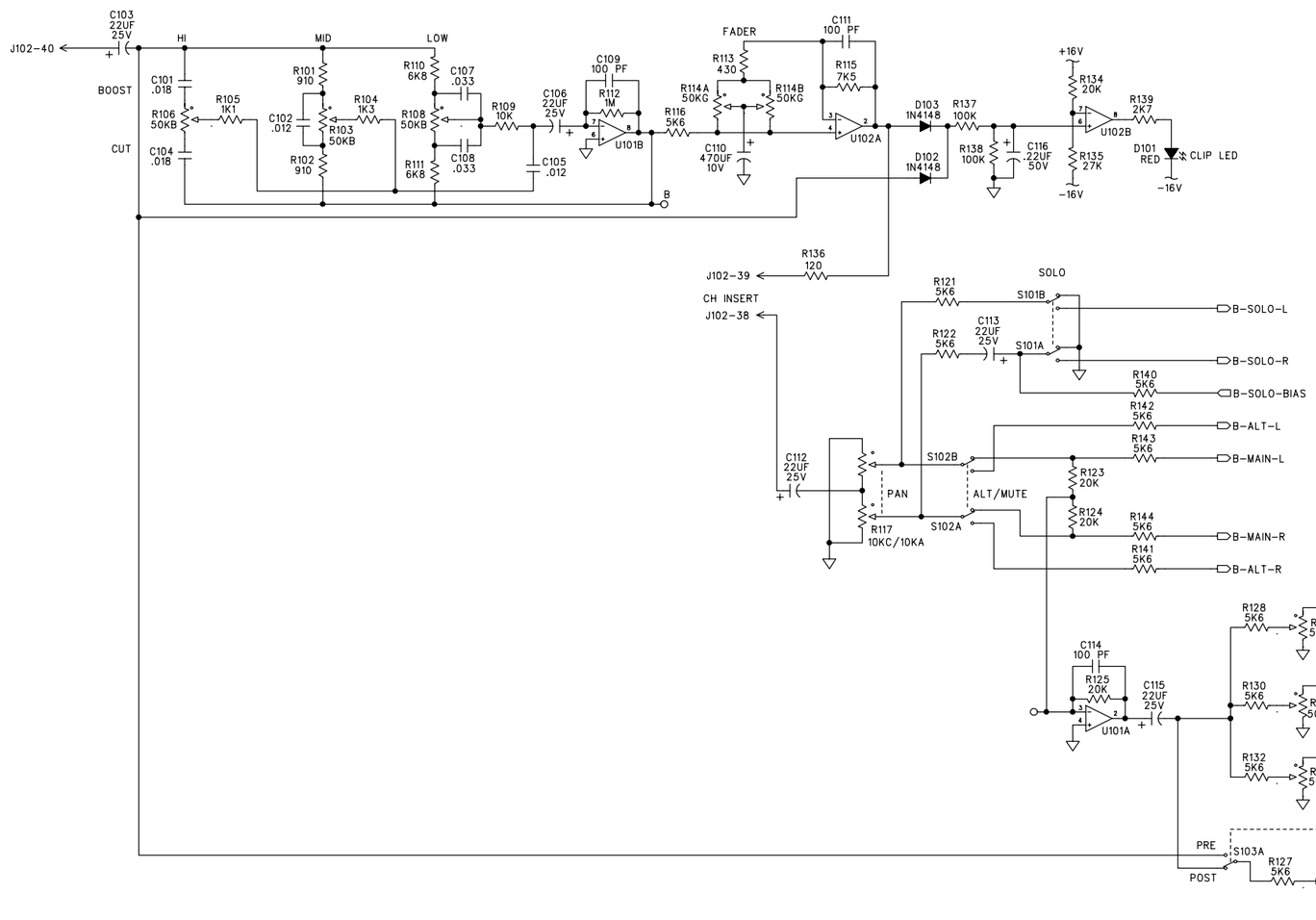
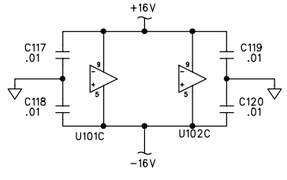
DWG. NO.	SHT	REV:
990-001-00	1	K

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
	J	INCORPORTATED ECO'S 307,368,400,401, 427,429,486,546 AND 547	KR		2-17-95
	K	INCORPORATED MISC. PCB REFINEMENTS	KR		4-26-95





CHANNEL 1

(CHANNELS 2-8 ARE SIMILAR)

J102-9
J102-10
J102-11
J102-12
J102-13
J102-14
J102-15
J102-16

706-009-00 LED SPACER .440
760-002-00 BUTTON SW 9X9 MM
760-003-00 BUTTON SW 9X5 MM
760-003-00 BUTTON SW 9X5 MM
760-003-00 BUTTON SW 9X5 MM

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA
MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: KR	2-17-95
CHECKED:	
ISSUED:	
ENG:	
MFG:	

Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
CR-1604 MAIN

SIZE	DWG. NO.	REV.
D	990-001-00	K

SCALE: NONE SHEET 1 OF 17

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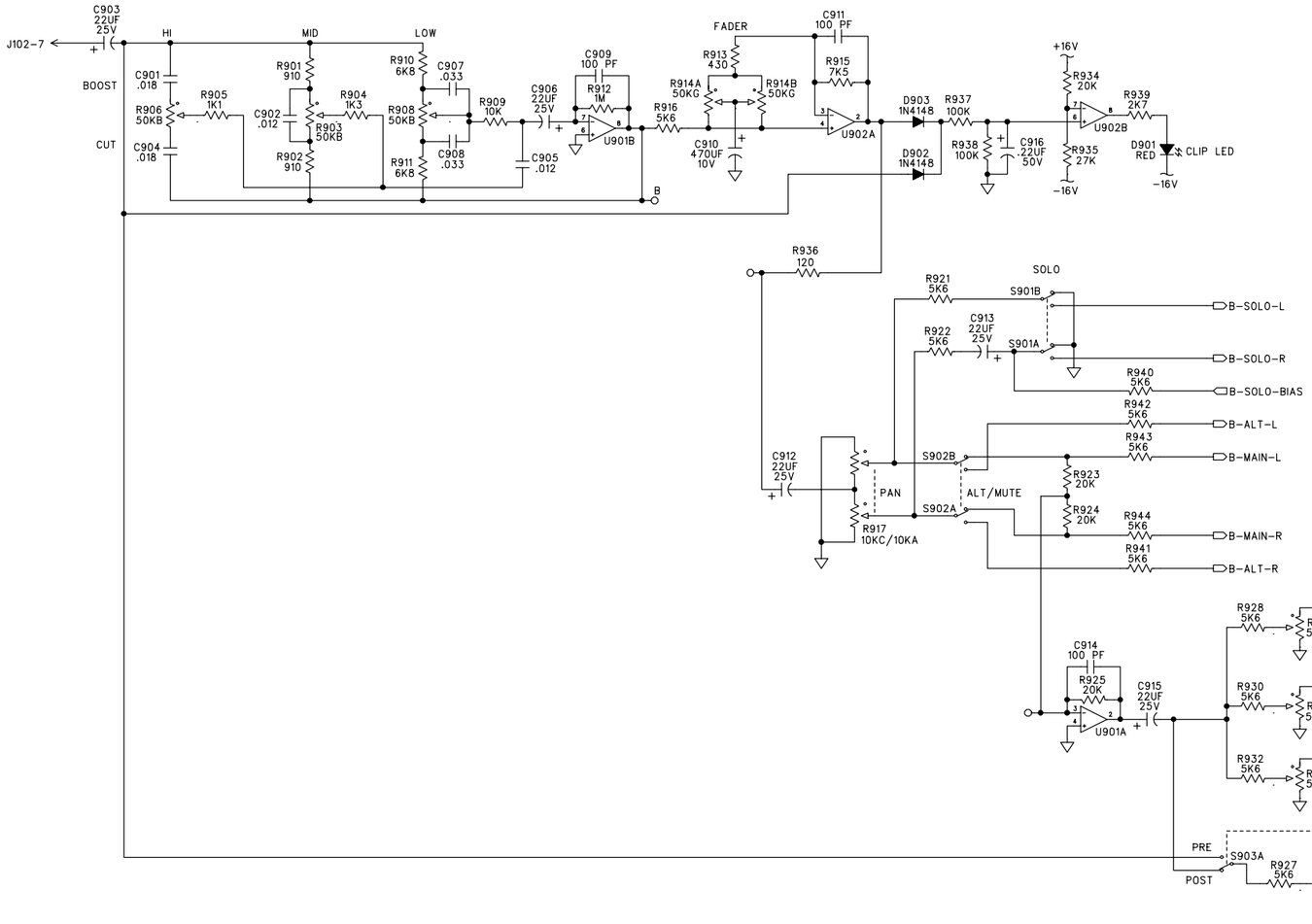
MAIN BOARD 01 Rev K 1-1

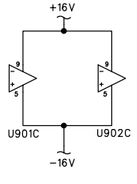
To make it easier to print out all boards at once, all boards are gathered together here

BACK

DWG. NO.	SHT	REV:
990-001-00	9	K

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE





CHANNEL 9

(CHANNELS 10-16 ARE SIMILAR)

706-009-00 LED SPACER .440
760-002-00 BUTTON SW 9X9 MM
760-003-00 BUTTON SW 9X5 MM
760-003-00 BUTTON SW 9X5 MM
760-003-00 BUTTON SW 9X5 MM

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA
MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: KR	2-17-95
CHECKED:	
ISSUED:	
ENG:	
MFG:	

MACKIE.
Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
CR-1604 MAIN

SIZE	DWG. NO.	REV.
D	990-001-00	K

SCALE: NONE SHEET 9 OF 17

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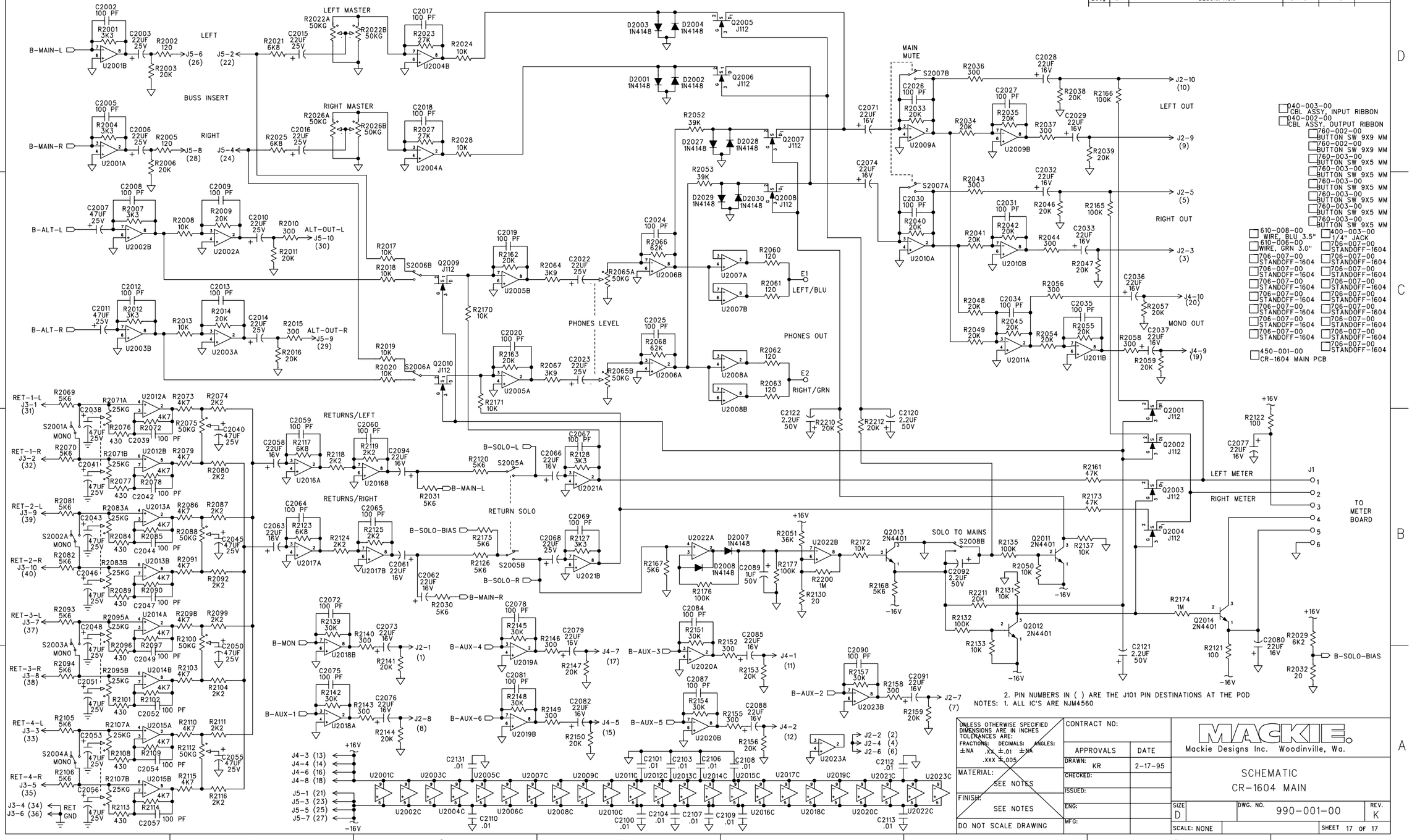
DWG. NO.	SHT	REV:
990-001-00	17	K

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS: DECIMALS: ANGLES: ±NA .XX ±.01 ±NA .XXX ±.005	CONTRACT NO:	MACKIE. Mackie Designs Inc. Woodinville, Wa.	
	APPROVALS / DATE	SCHEMATIC CR-1604 MAIN	
MATERIAL: SEE NOTES	DRAWN: KR 2-17-95		
FINISH: SEE NOTES	CHECKED:		
DO NOT SCALE DRAWING	ISSUED:		
	ENG:		
	MFG:	SIZE D / DWG. NO. 990-001-00 / REV. K	
		SCALE: NONE	SHEET 17 OF 17

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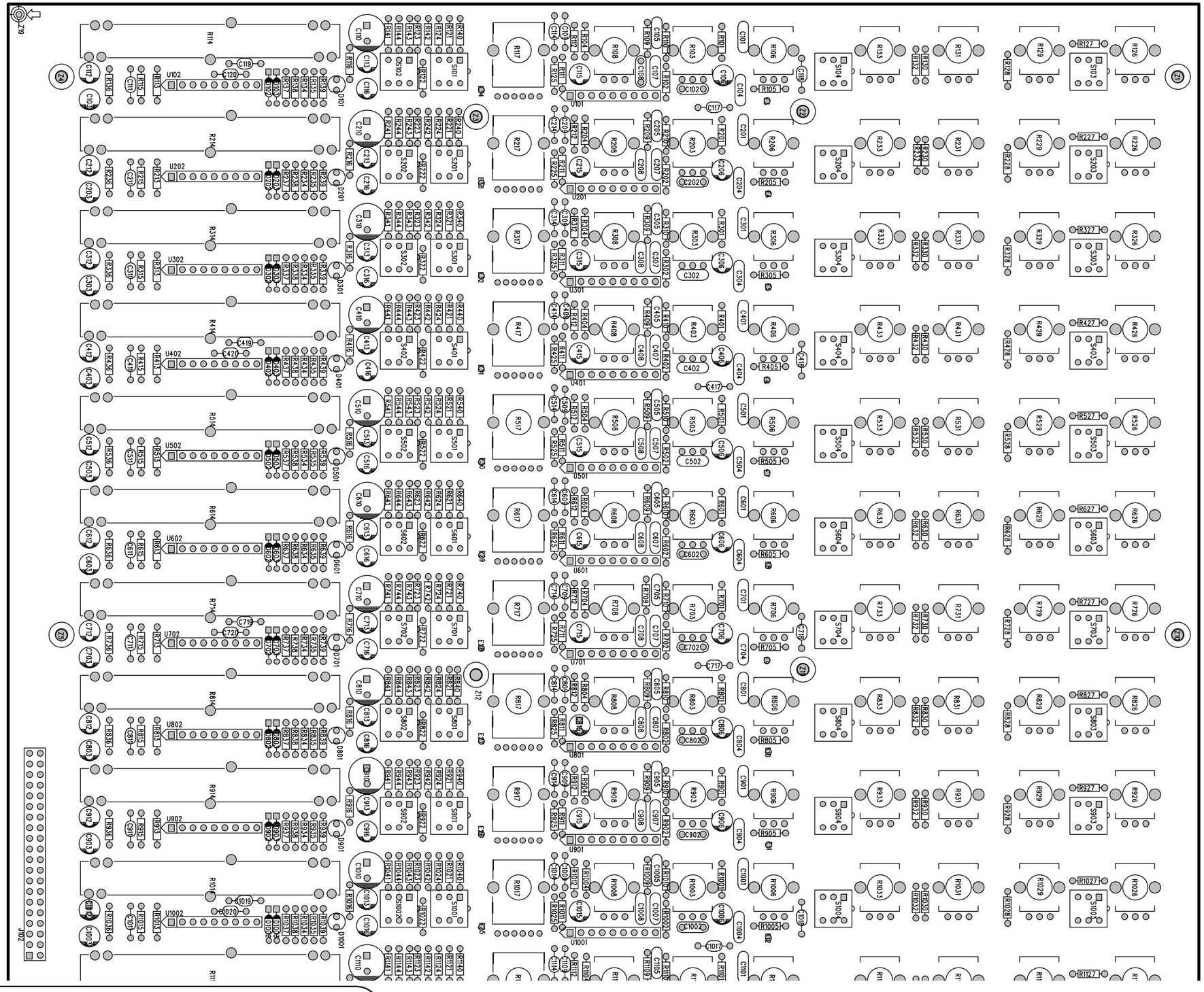

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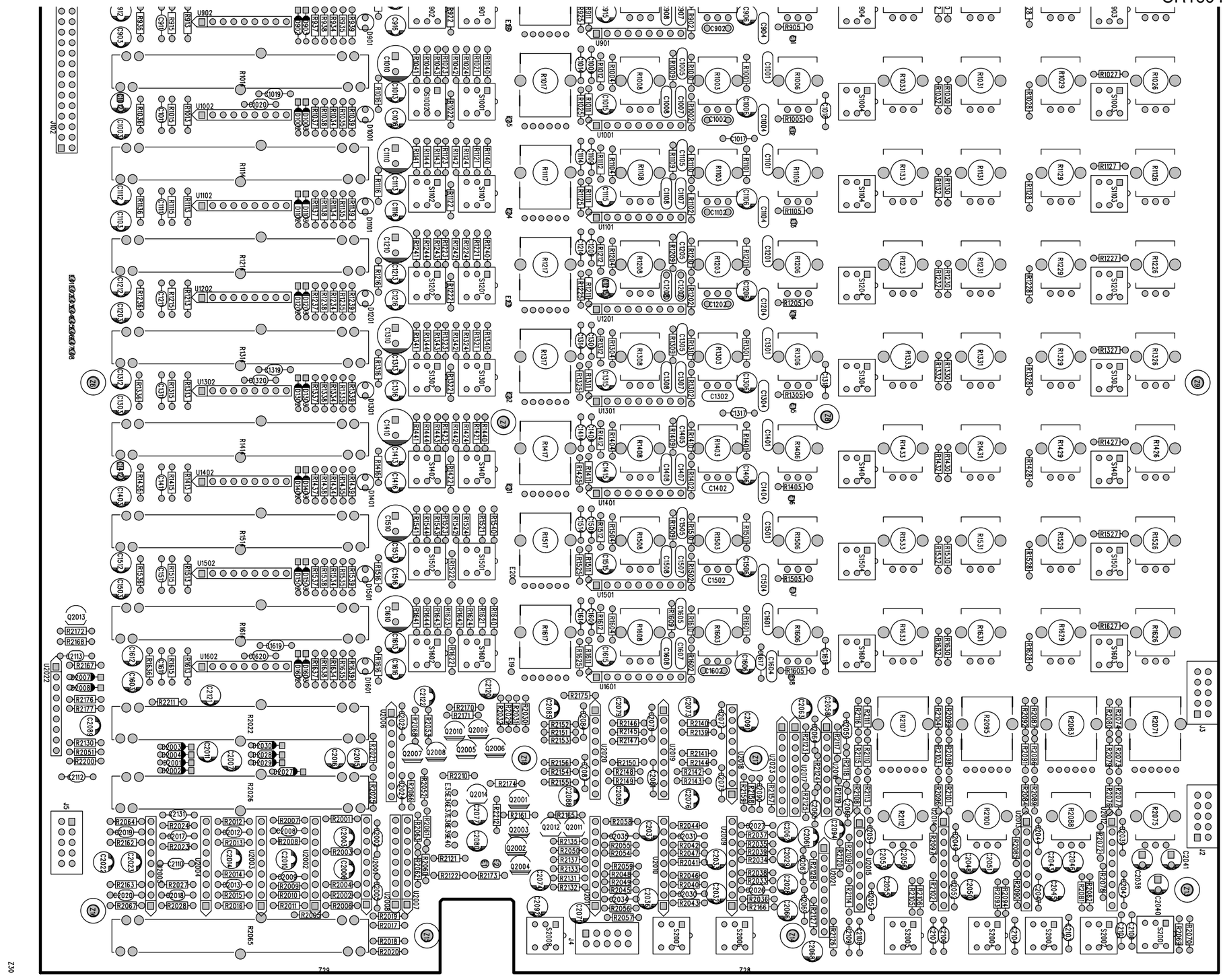

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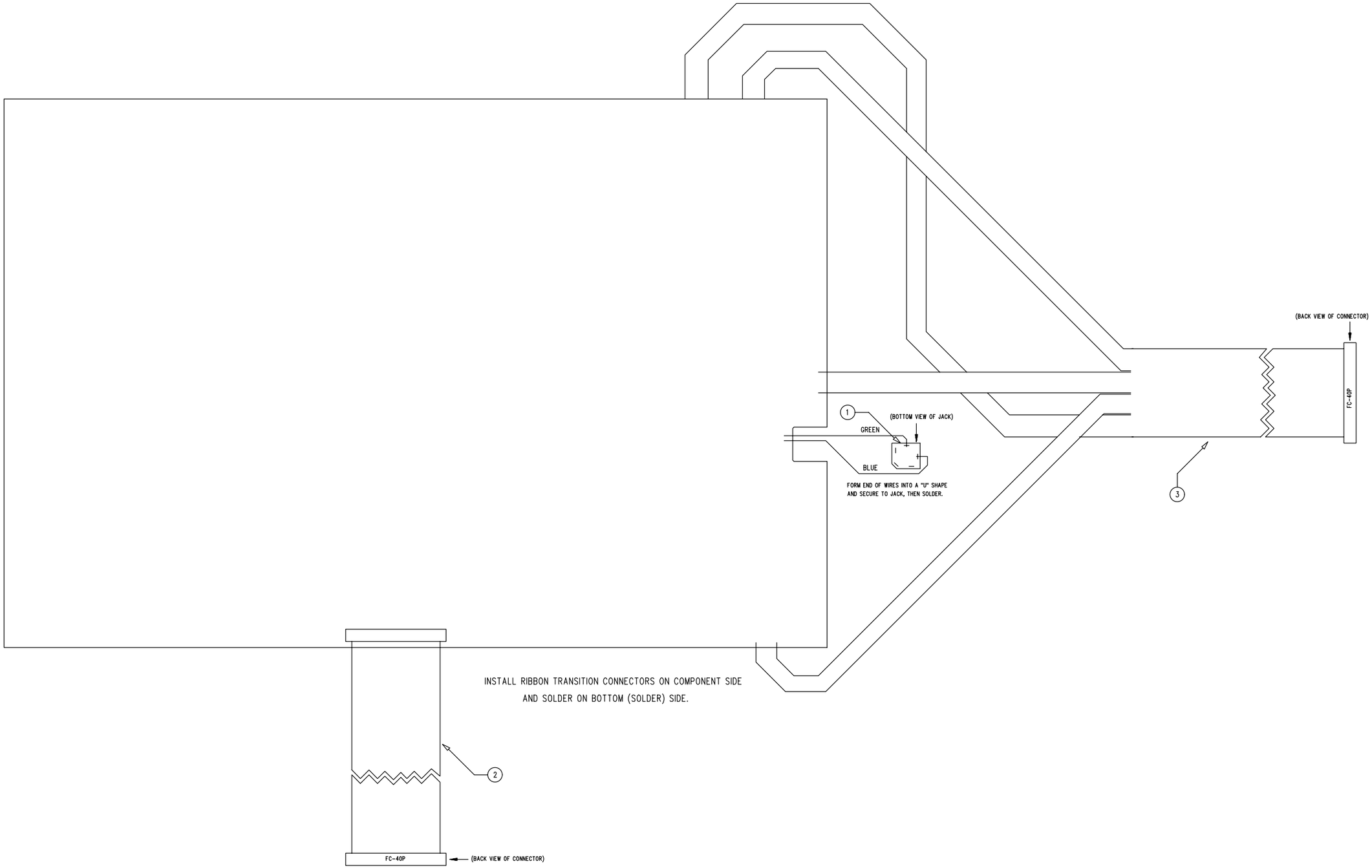

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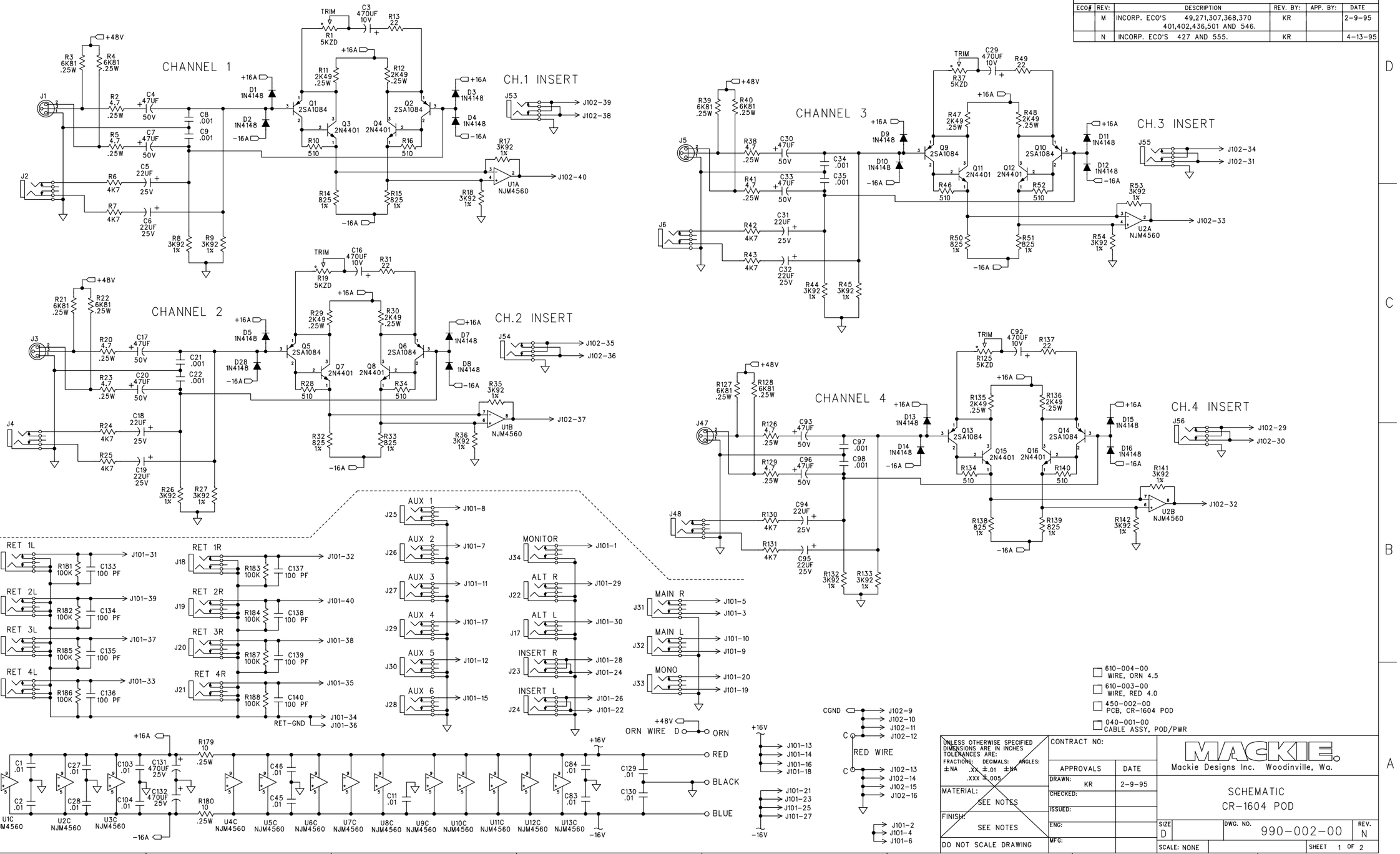
DWG. NO.	SHT	REV:
990-002-00	1	N

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
	M	INCORP. ECO'S 49,271,307,368,370 401,402,436,501 AND 546.	KR		2-9-95
	N	INCORP. ECO'S 427 AND 555.	KR		4-13-95



610-004-00 WIRE, ORN 4.5
610-003-00 WIRE, RED 4.0
450-002-00 PCB, CR-1604 POD
040-001-00 CABLE ASSY, POD/PWR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: DECIMALS: ANGLES:
±NA .XX ±.01 ±NA
.XXX ±.005
MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: KR	2-9-95
CHECKED:	
ISSUED:	
ENG:	
MFG:	

MACKIE. Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
CR-1604 POD

SIZE D | DWG. NO. 990-002-00 | REV. N
SCALE: NONE | SHEET 1 OF 2

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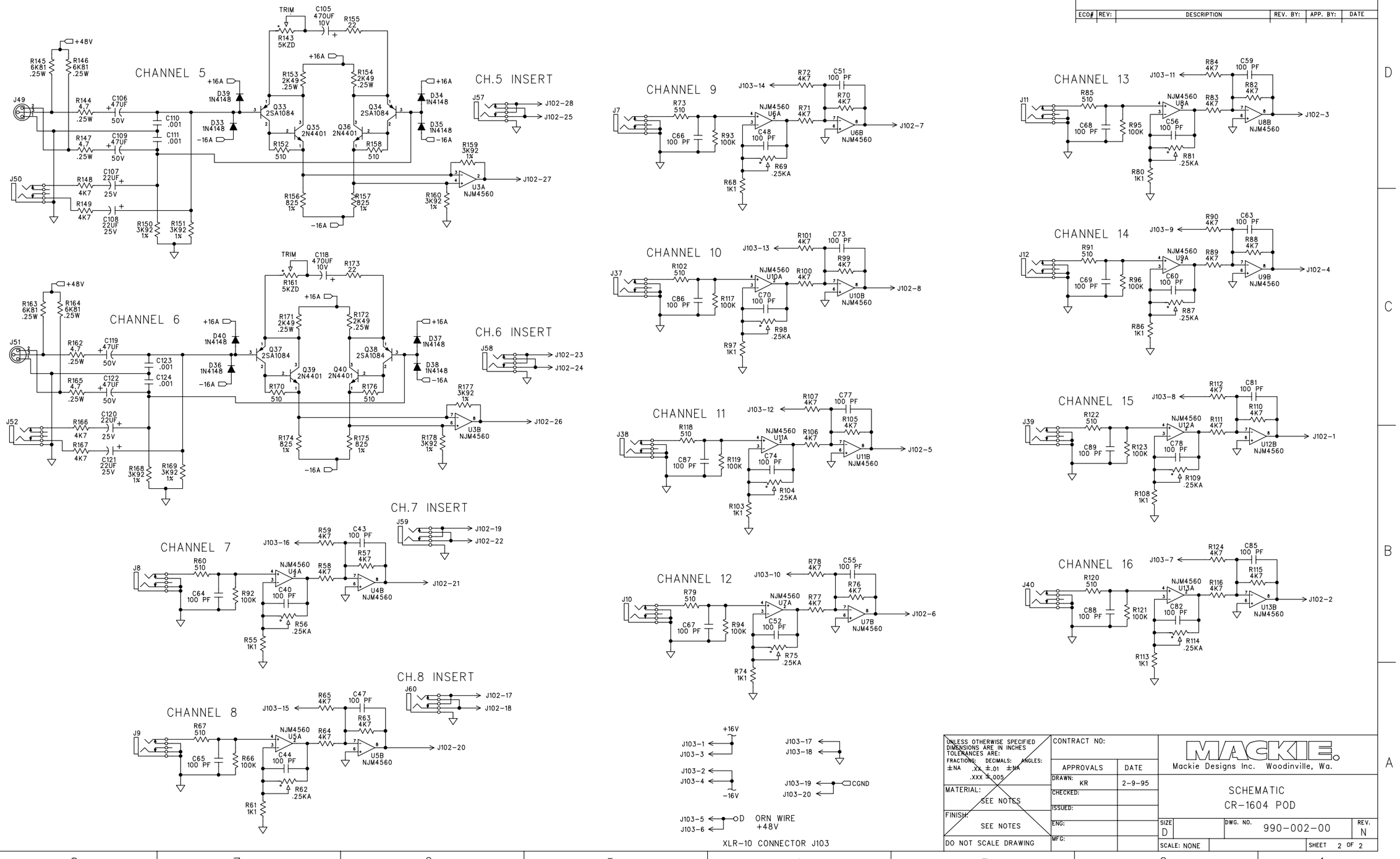

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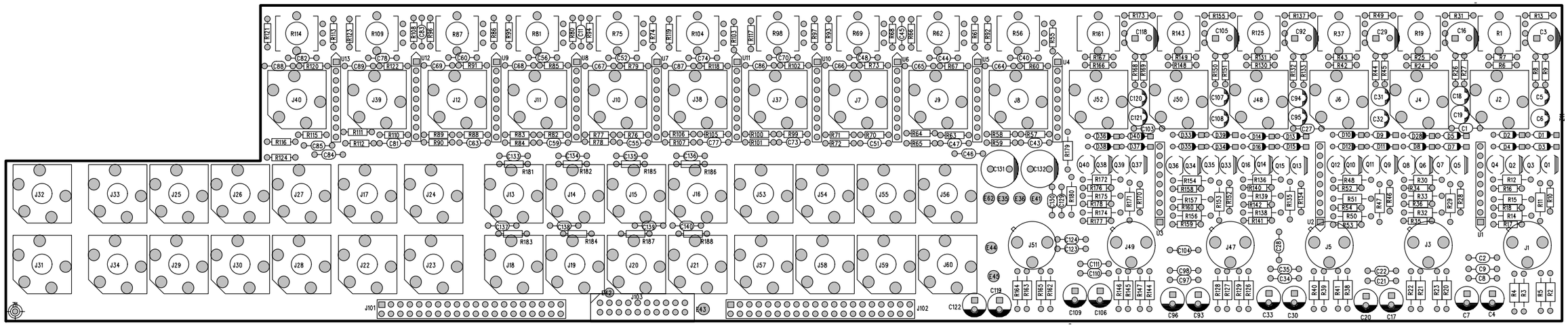

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XLR-10 Installation

❶ First make sure that the CR-1604 is turned off. Flip it upside down with the jacks facing you (there is no need to actually remove the pod) and remove the small connector cover near the pod's center. Save the cover and screws by taping them to the bottom of the mixer.

❷ Remove the pod's rubber feet.

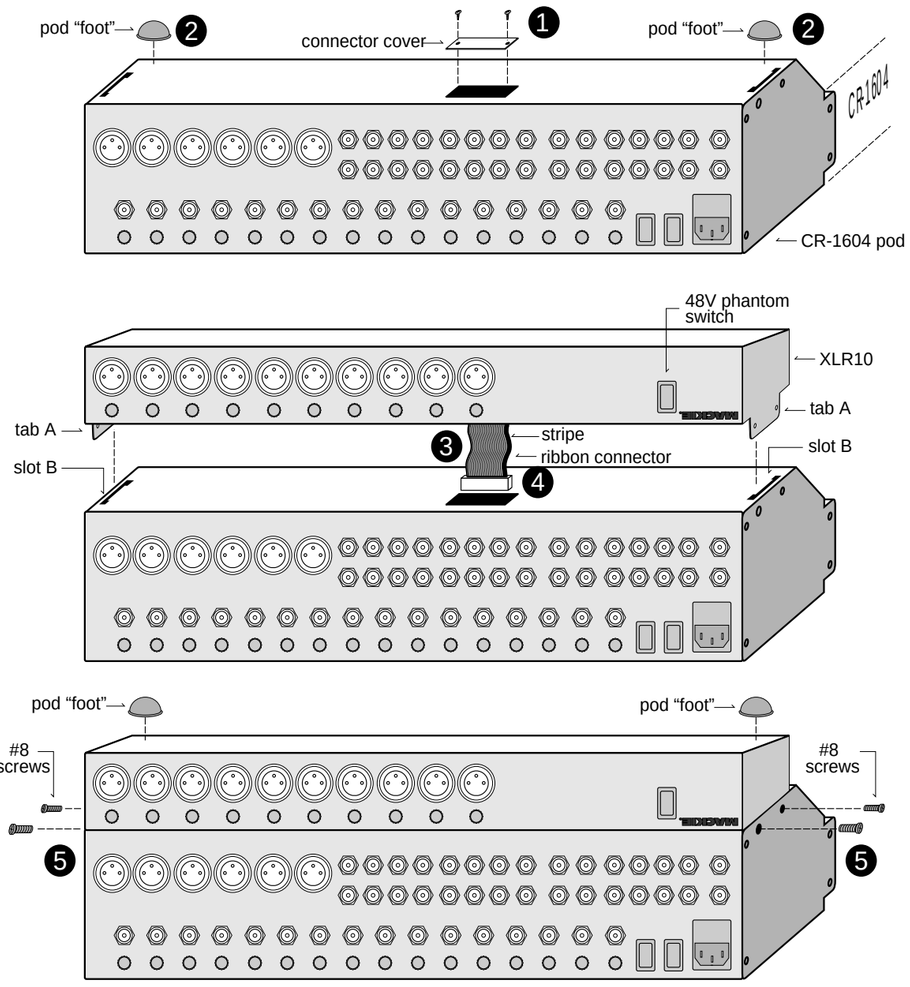
❸ Install the ribbon connector which extends out of the XLR10 by pressing the plug onto the exposed pins. Make sure that the stripe on the ribbon is on the side closest to the XLR 10's phantom switch (the right side in our drawing).

❹ As you lower the XLR10 towards the CR-1604 pod, work the excess ribbon cable back into the XLR10 by wiggling it gently.

❺ Slide the tabs on the sides of the XLR10 into the slots on the top of the CR- 1604 and secure them with the four #8 screws provided. Don't push on the screws while attaching them, since doing so may dislodge the mounted nuts on the inside of the pod.

❻ Install the new pod feet.

Happy mixing!



Operating Instructions

When you combine the CR-1604 with the XLR10 you can use the added mic inputs by themselves or, if you're starved for inputs, you can use both mic and line inputs simultaneously.

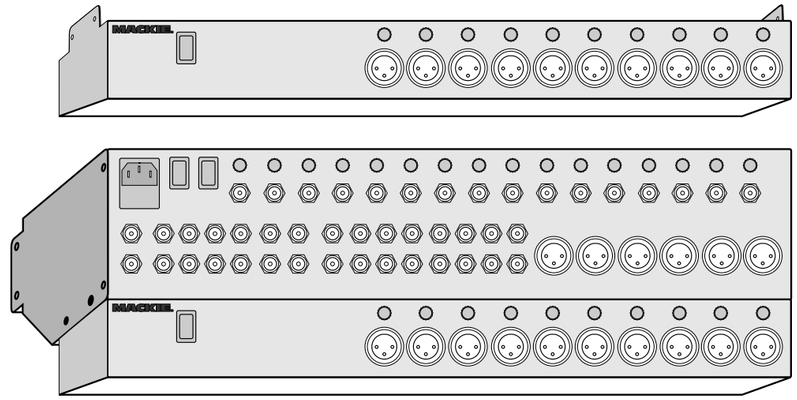
In other words, with the XLR10, you actually get 10 more inputs. On Channels 7 through 16 only, the XLR mic inputs can be used with the existing line inputs. Each has its own sensitivity control.

Set the sensitivity controls as you normally would. Put the channel into SOLO to read its operating level on the main output meter.

1. Adjust the mic sensitivity control first .

2. With the mic placed where it will normally operate in relation to the acoustic source, start at minimum (fully counterclockwise), then turn the gain up until you get a reading of around 0dB on the meter.

3. Finally, adjust the line input sensitivity until you get the desired balance between mic and line signals.



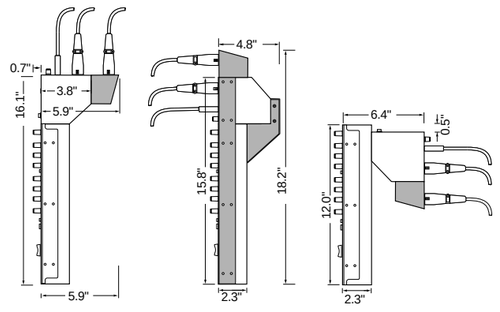
Famous XLR10 Interview Questions

Q. Can the XLR10 be used in all of the three pod variations?

A. Yes, see the drawing below.

Q. Can the XLR10 be used with anything other than the CR-1604?

A. No, it utilizes the internal power supply of the CR-1604 and is not free standing.



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DWG. NO.	SHT	REV:
990-003-00	1	H

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
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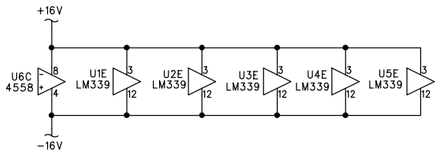
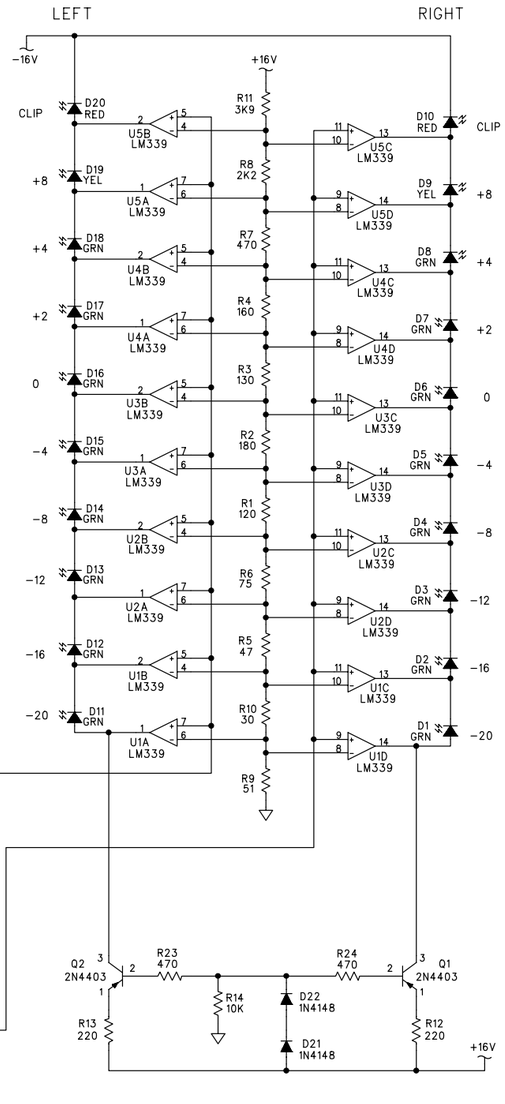
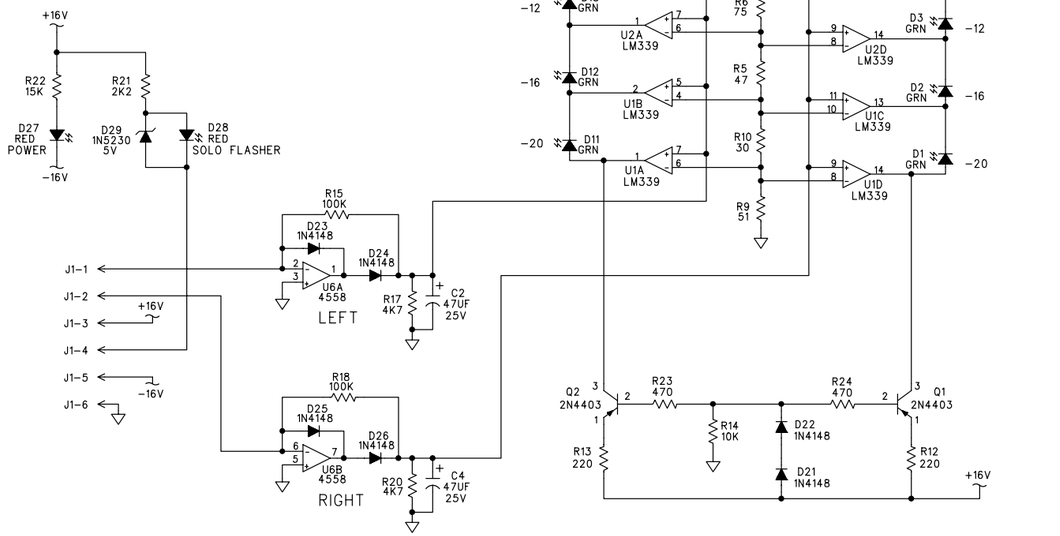
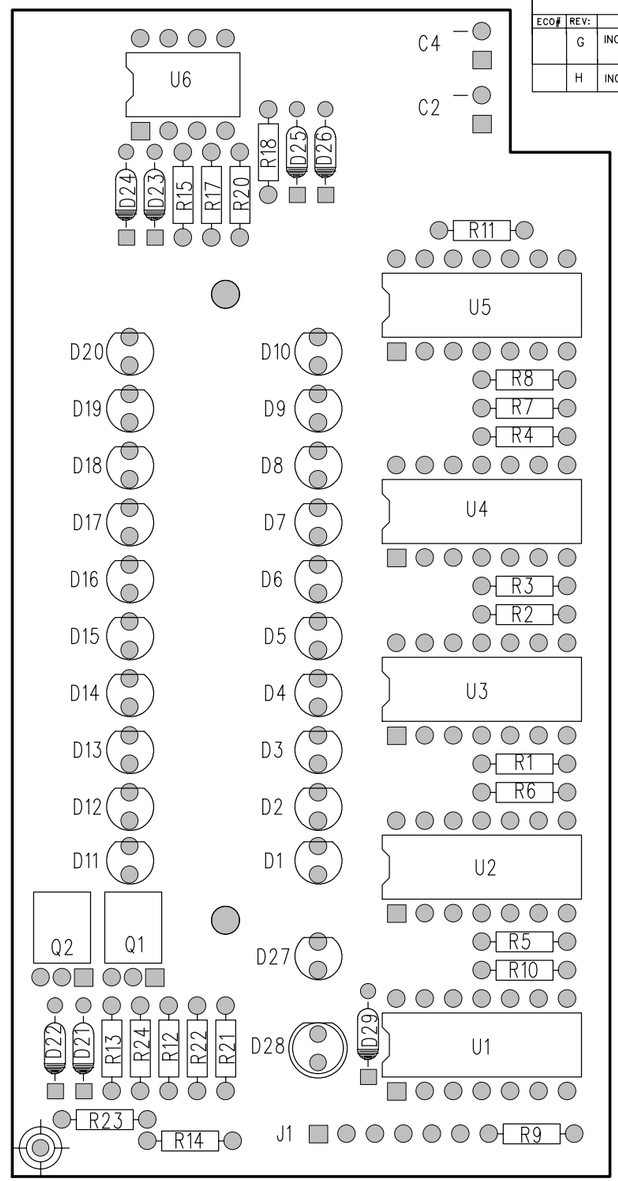
	H	INCORPORATED ECO 542	KR		3-30-95









706-008-00 STANDOFF, SWAGE

706-008-00 STANDOFF, SWAGE

450-003-00 PCB, CR1604 METER

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 ±NA .XXX ±.005 ANGLES: ±NA

MATERIAL: SEE NOTES

FINISH: SEE NOTES

DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: KR	3-30-95
CHECKED:	
ISSUED:	
ENG:	
MFG:	

MACKIE. Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
CR-1604 METER

SIZE D | DWG. NO. 990-003-00 | REV. H

SCALE: NONE | SHEET 1 OF 1

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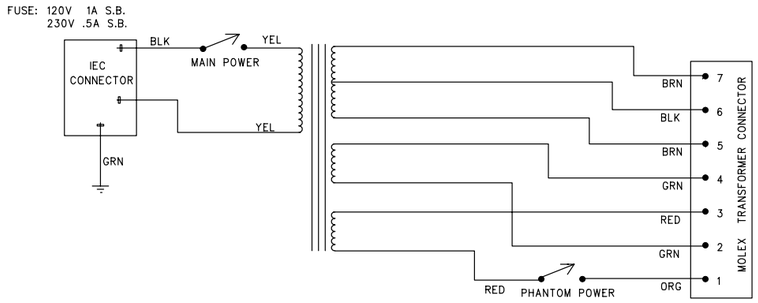
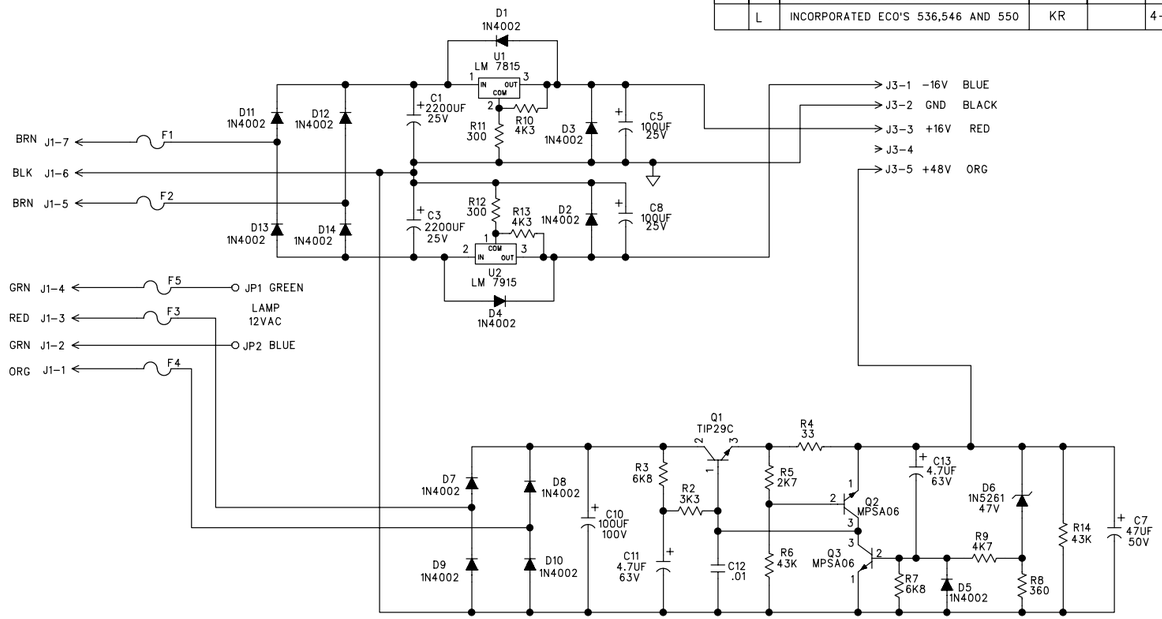
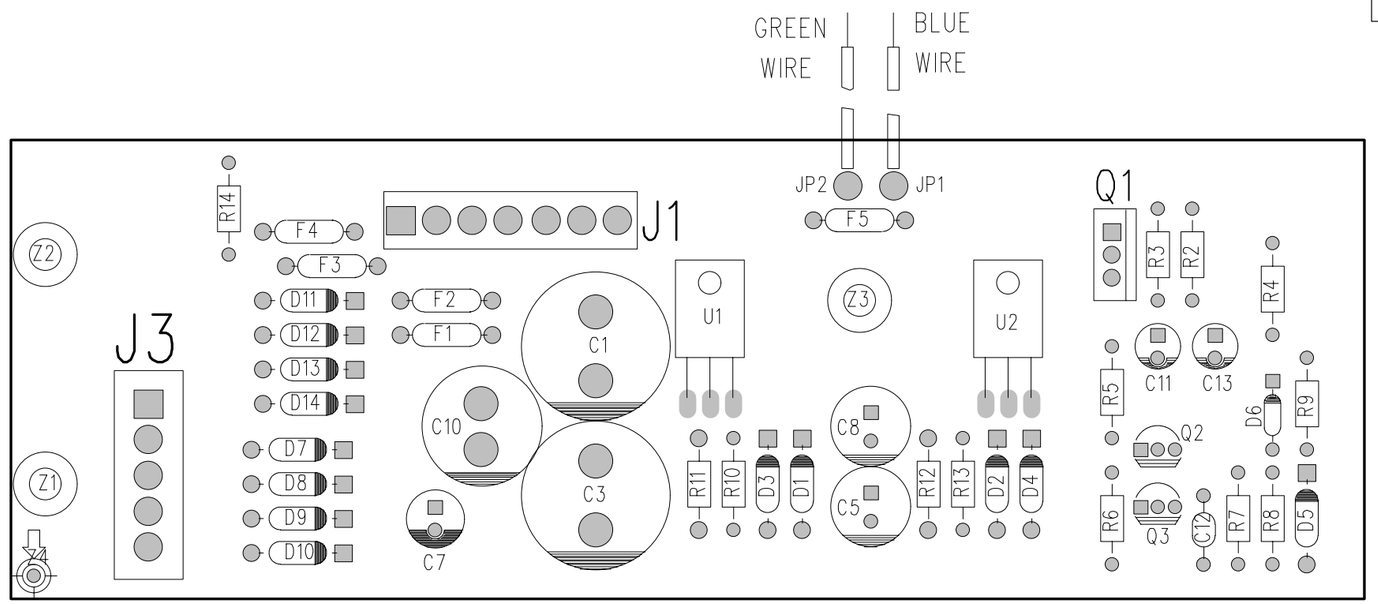
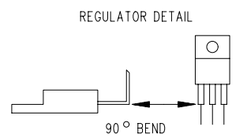
DWG. NO.	SHT	REV:
990-004-00	1	L

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
	K	INCORPORATED ECO'S 307,418,407,412,421,331,401	KR		1-3-95
	L	INCORPORATED ECO'S 536,546 AND 550	KR		4-6-95









☐ 450-004-00 PCB, CR1604 POWER SUPPLY
☐ 610-008-00 BLUE WIRE 3.5
☐ 610-006-00 GREEN WIRE 3.0

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA	CONTRACT NO:	MACKIE. Mackie Designs Inc. Woodinville, Wa.
MATERIAL: SEE NOTES	APPROVALS / DATE	SCHEMATIC CR1604 POWER SUPPLY
FINISH: SEE NOTES	DRAWN: KR 4-6-95	SIZE D · DWG. NO. 990-004-00 · REV. L
DO NOT SCALE DRAWING	CHECKED: / ISSUED: / ENG: / MFG:	SCALE: NONE · SHEET 1 OF 1

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DWG. NO.	SHT	REV:
990-005-00	1	J

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
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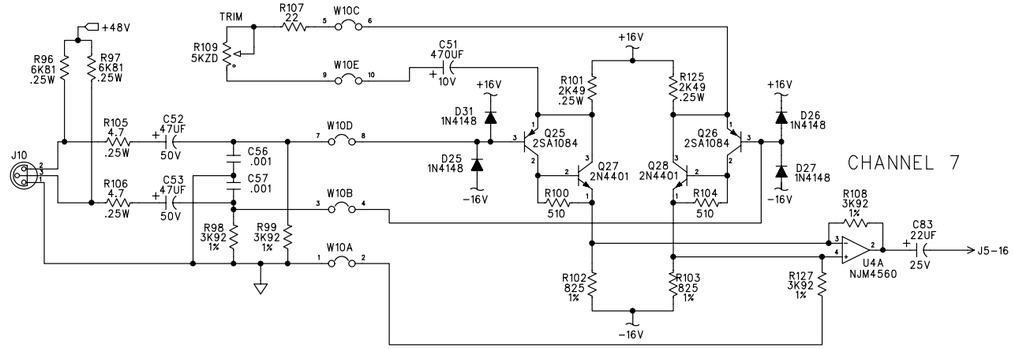
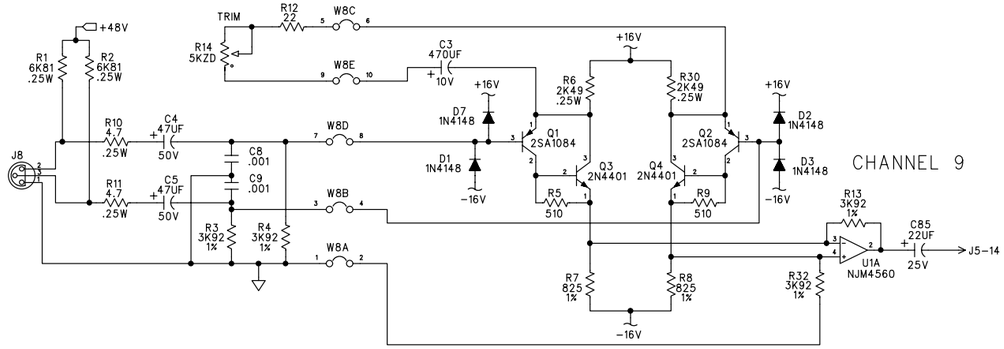
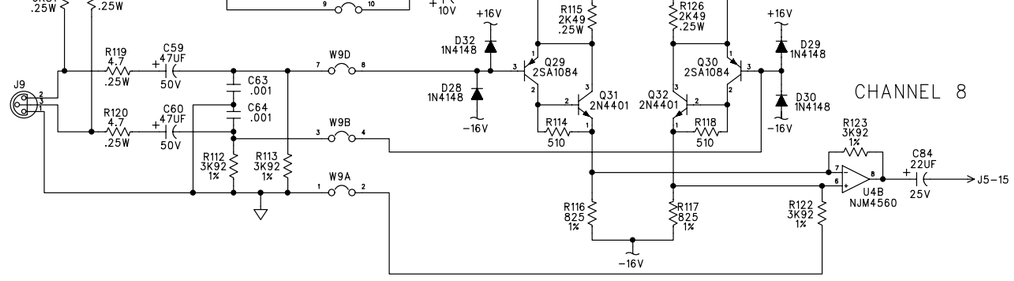
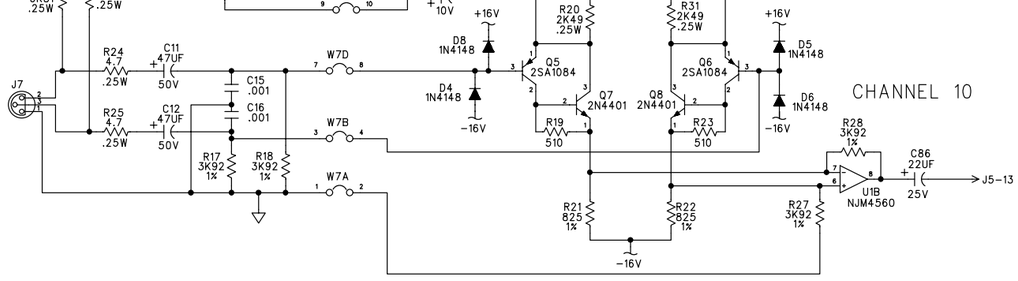
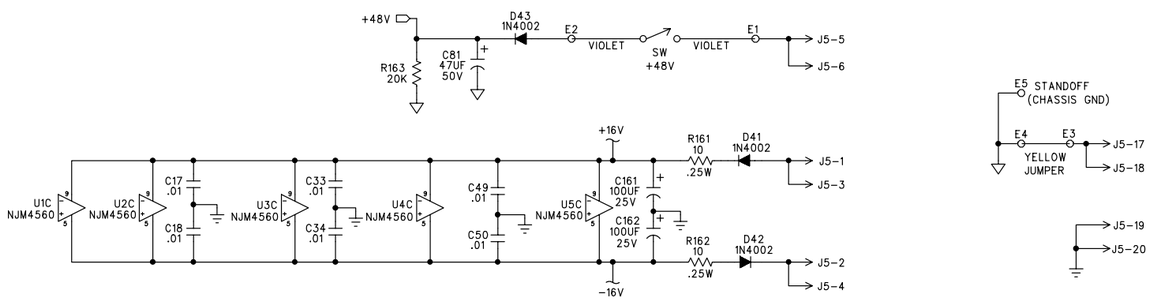
	J	INCORPORATED ECO 427	KR		4-12-95











- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 610-007-00 WIRE, 6.5" VIOLET
- ☐ 610-007-00 WIRE, 6.5" VIOLET
- ☐ 610-005-00 WIRE, 2.5" YELLOW
- ☐ 450-005-00 PCB, XLR10

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA
MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: KR	1-10-95
CHECKED:	
ISSUED:	
ENG:	
MFG:	

Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
XLR-10

SIZE D | DWG. NO. 990-005-00 | REV. J
SCALE: NONE | SHEET 1 OF 2

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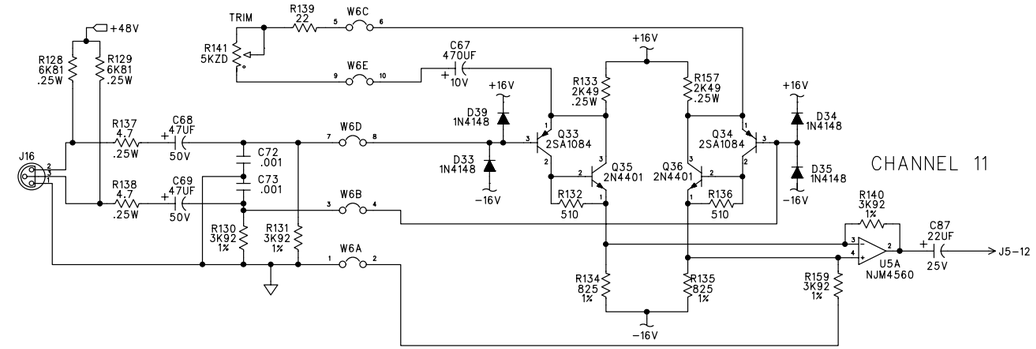
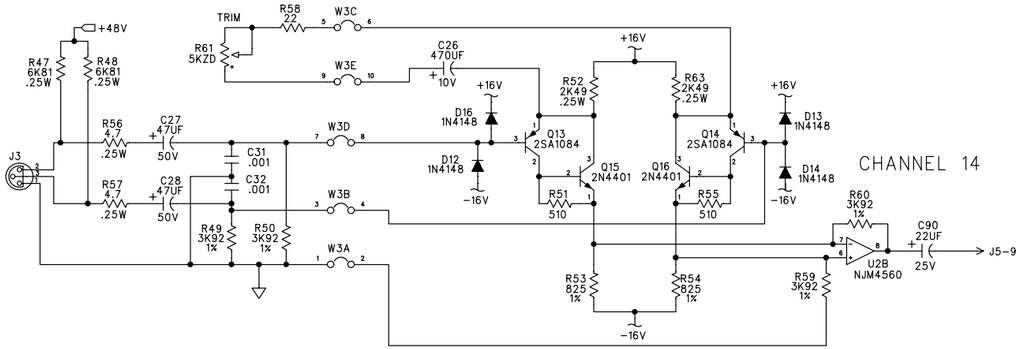
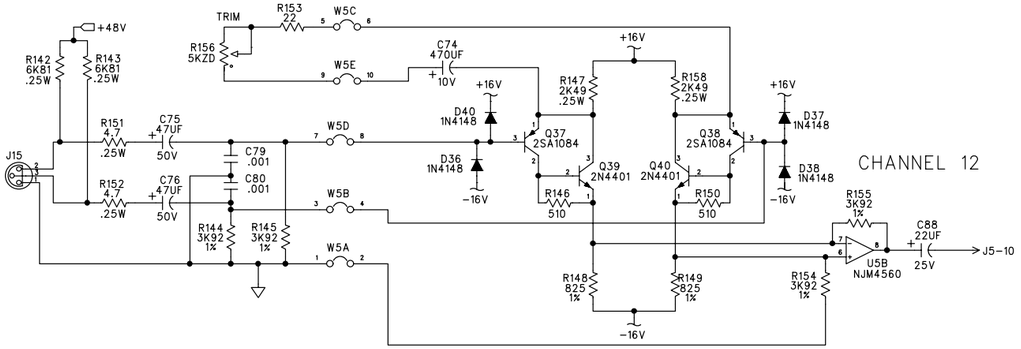
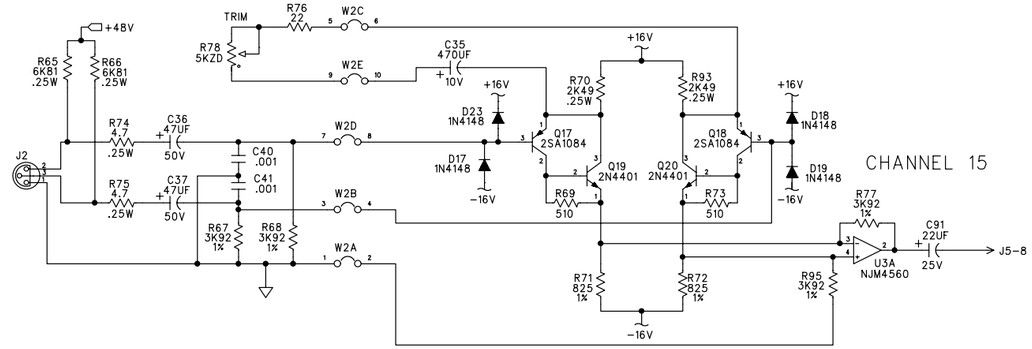
DWG. NO.	SHT	REV:
990-005-00	2	J

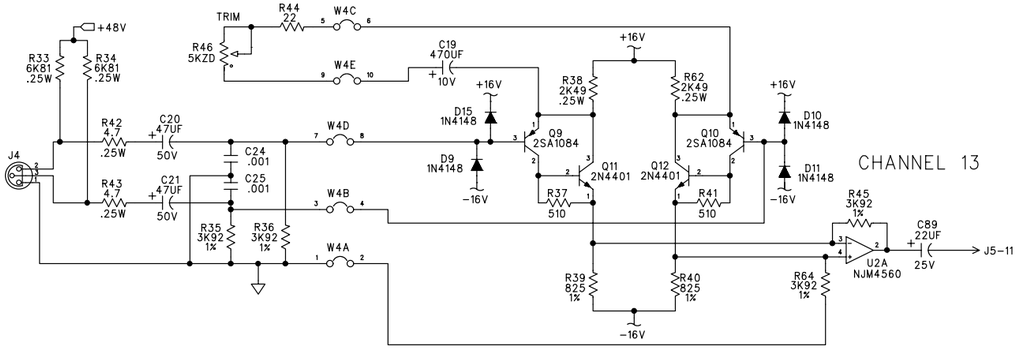
ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE

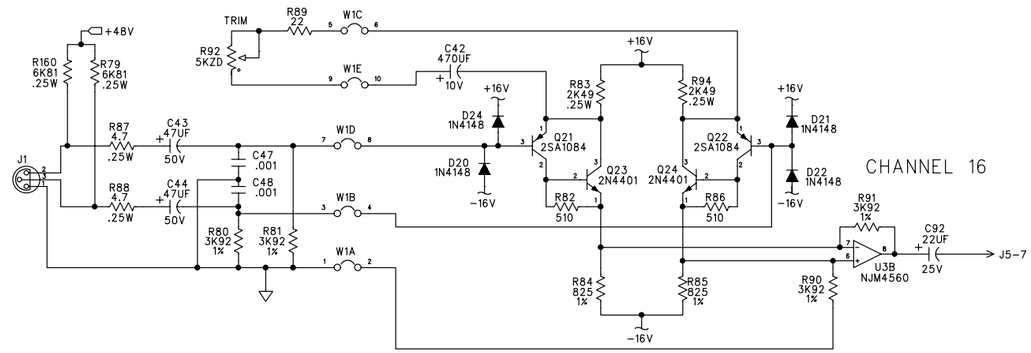












UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA	CONTRACT NO:
MATERIAL: SEE NOTES	APPROVALS / DATE
FINISH: SEE NOTES	DRAWN: KR 1-10-95
DO NOT SCALE DRAWING	CHECKED:
	ISSUED:
	ENG:
	MFG:

MACKIE. Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
XLR-10

SIZE	DWG. NO.	REV.
D	990-005-00	J

SCALE: NONE SHEET 2 OF 2

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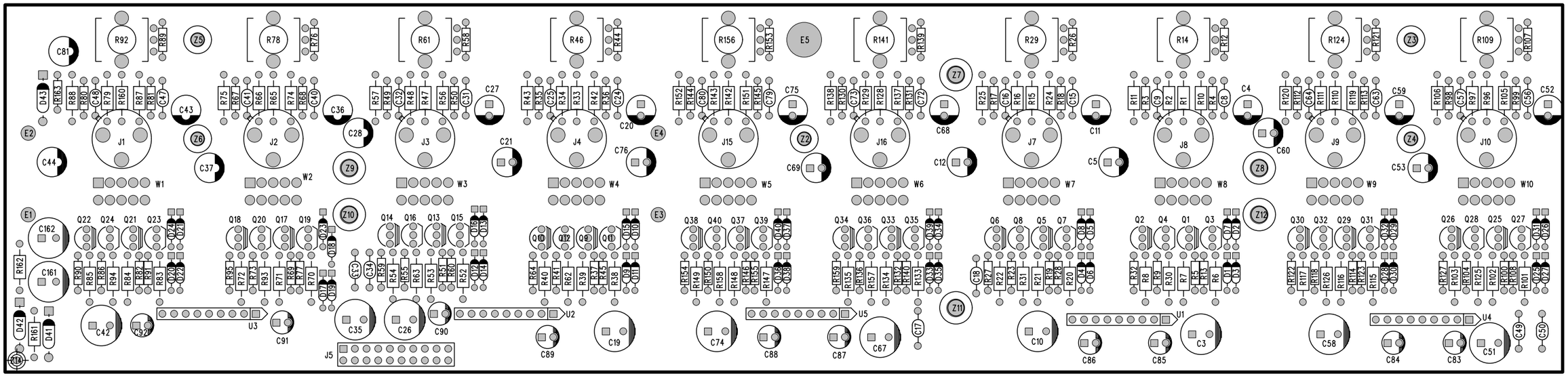

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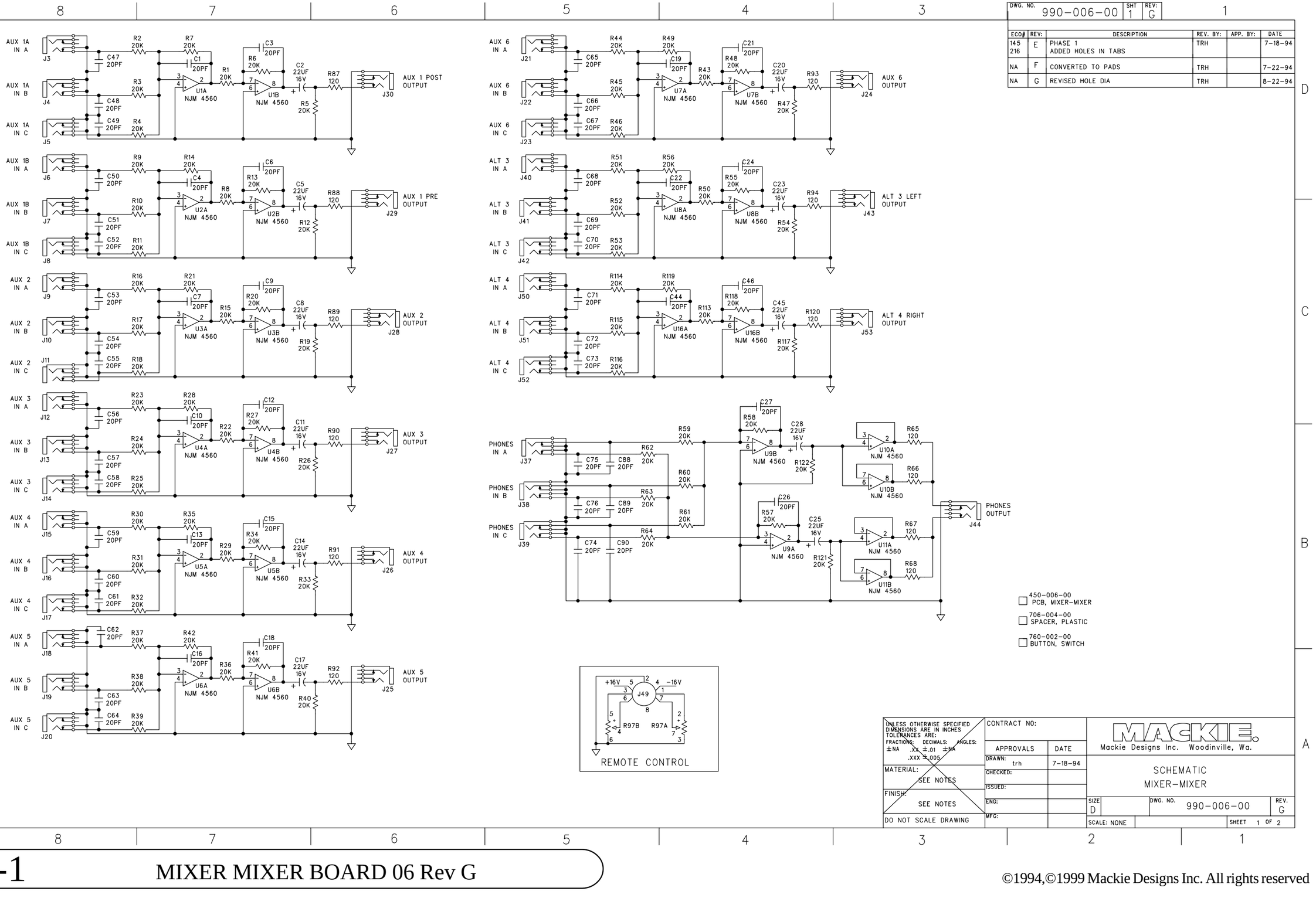

DWG. NO.	SHT	REV:
990-006-00	1	G

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
145 216	E	PHASE 1 ADDED HOLES IN TABS	TRH		7-18-94
NA	F	CONVERTED TO PADS	TRH		7-22-94
NA	G	REVISED HOLE DIA	TRH		8-22-94

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 ±NA .XXX ±.005 ANGLES: ±NA

MATERIAL: SEE NOTES

FINISH: SEE NOTES

DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: trh	7-18-94
CHECKED:	
ISSUED:	
ENG:	
MFG:	

Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
MIXER-MIXER

SIZE	DWG. NO.	REV.
D	990-006-00	G

SCALE: NONE SHEET 1 OF 2

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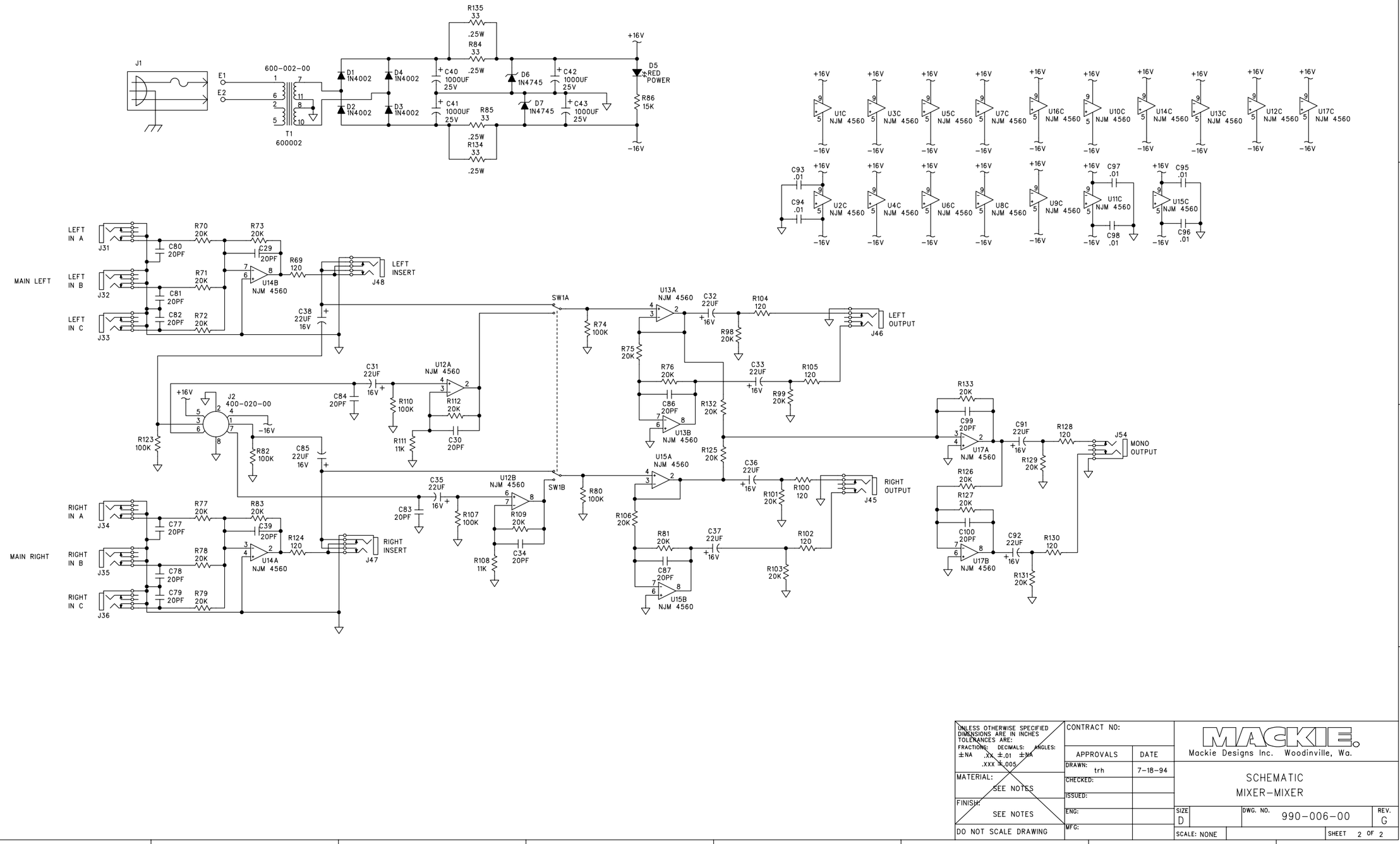
DWG. NO.	SHT	REV:
990-006-00	2	G

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS: ±NA DECIMALS: .XX ±.01 ANGLES: ±NA .XXX ±.005	CONTRACT NO:	
MATERIAL: SEE NOTES	APPROVALS	DATE
FINISH: SEE NOTES	DRAWN: trh	7-18-94
DO NOT SCALE DRAWING	CHECKED:	
	ISSUED:	
	ENG:	
	MFG:	

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SCHEMATIC
MIXER-MIXER

SIZE	DWG. NO.	REV.
D	990-006-00	G
SCALE: NONE		SHEET 2 OF 2

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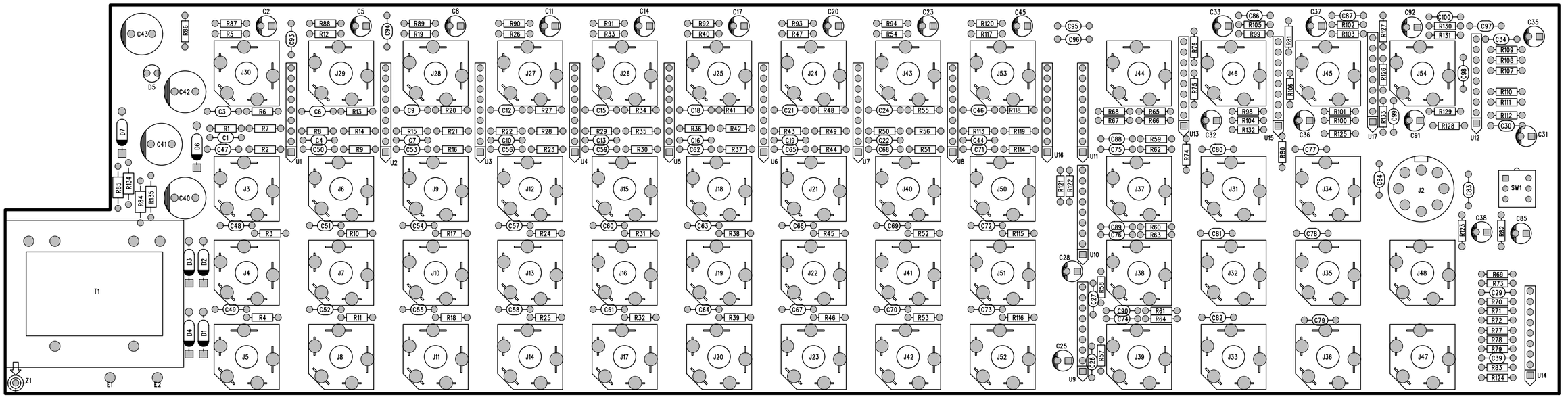

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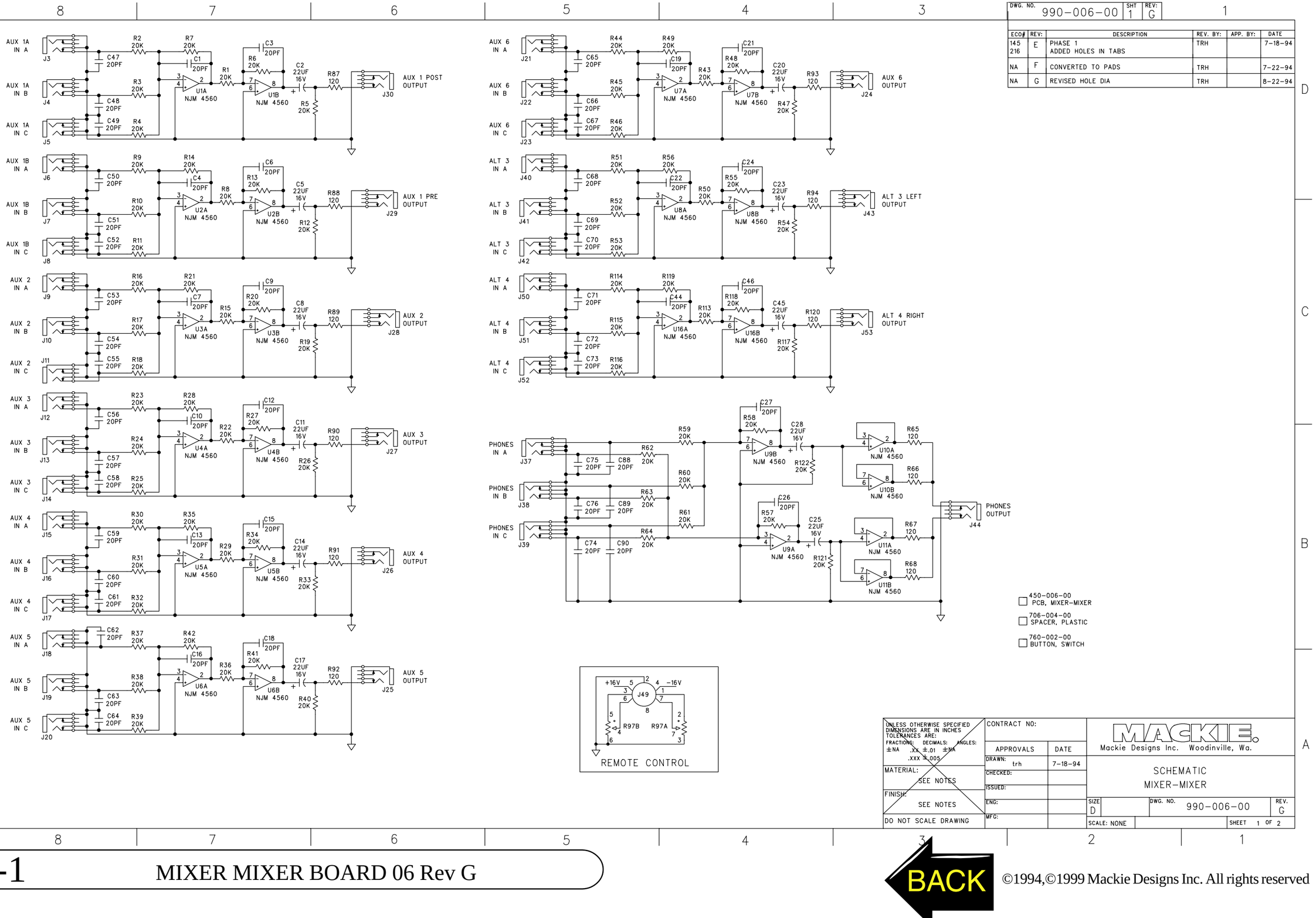

DWG. NO.	SHT	REV:
990-006-00	1	G

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
145 216	E	PHASE 1 ADDED HOLES IN TABS	TRH		7-18-94
NA	F	CONVERTED TO PADS	TRH		7-22-94
NA	G	REVISED HOLE DIA	TRH		8-22-94

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 ±NA .XXX ±.005 ANGLES: ±NA

MATERIAL: SEE NOTES

FINISH: SEE NOTES

DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
DRAWN: trh	7-18-94
CHECKED:	
ISSUED:	
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SCHEMATIC
MIXER-MIXER

SIZE	DWG. NO.	REV.
D	990-006-00	G

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BACK
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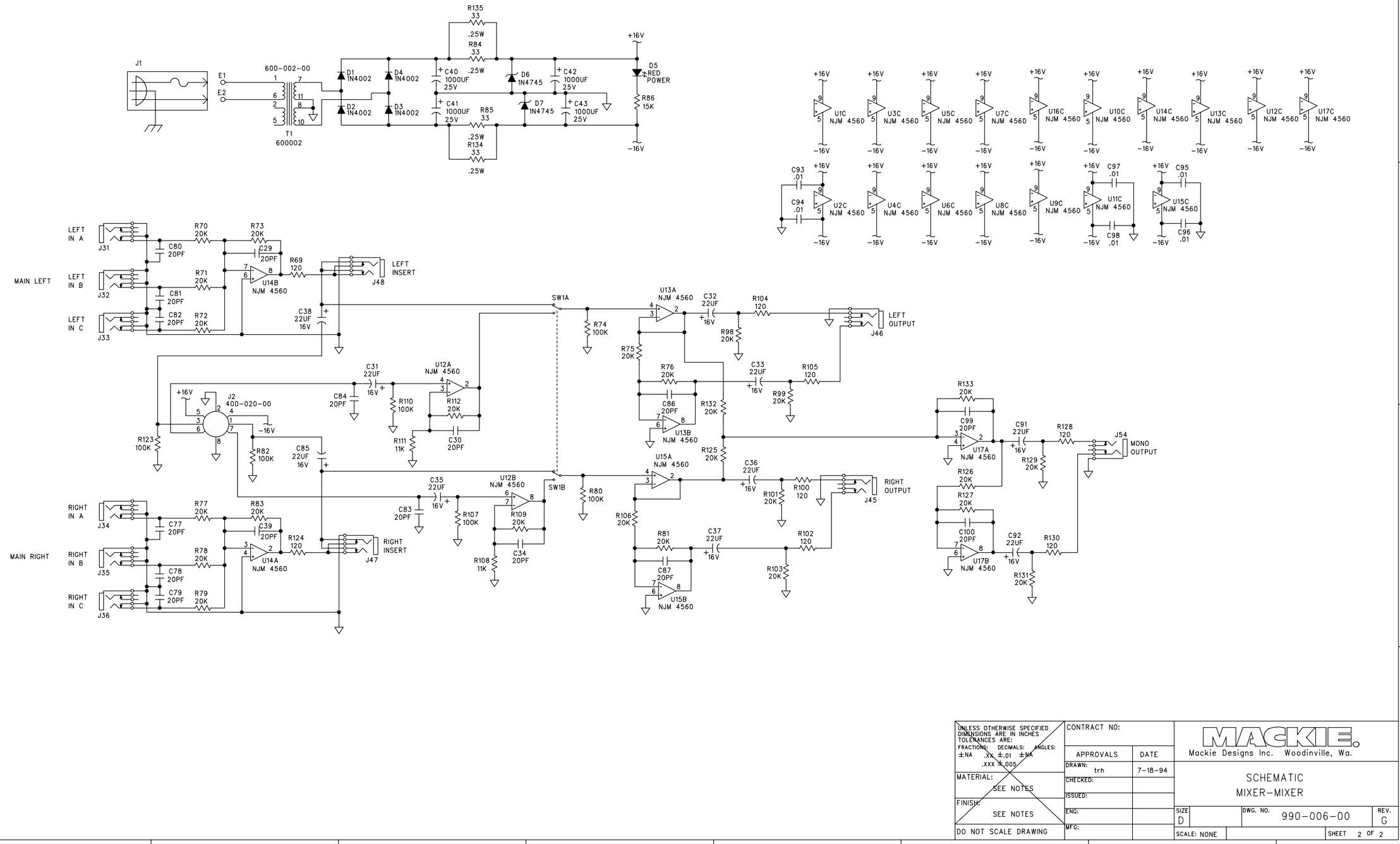
DWG. NO.	SHT	REV:
990-006-00	2	G

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE



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FINISH: SEE NOTES	DRAWN: trh	7-18-94
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	ISSUED:	
	ENG:	
	MFG:	

MACKIE. Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
MIXER-MIXER

SIZE	DWG. NO.	REV.
D	990-006-00	G
SCALE: NONE		SHEET 2 OF 2

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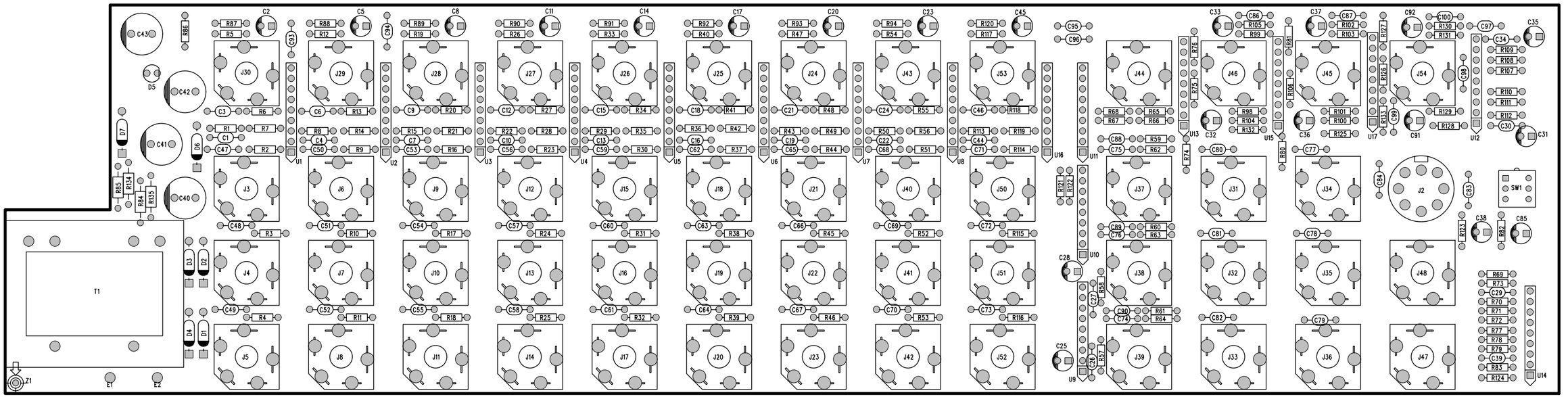

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DWG. NO.	SHT	REV:
990-005-00	1	J

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
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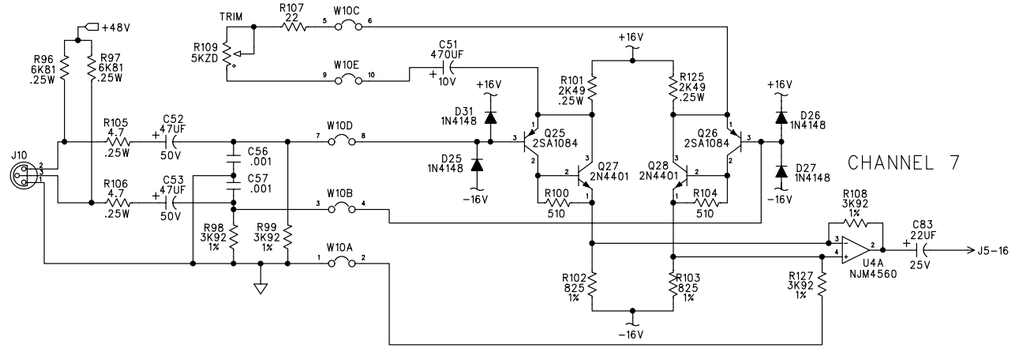
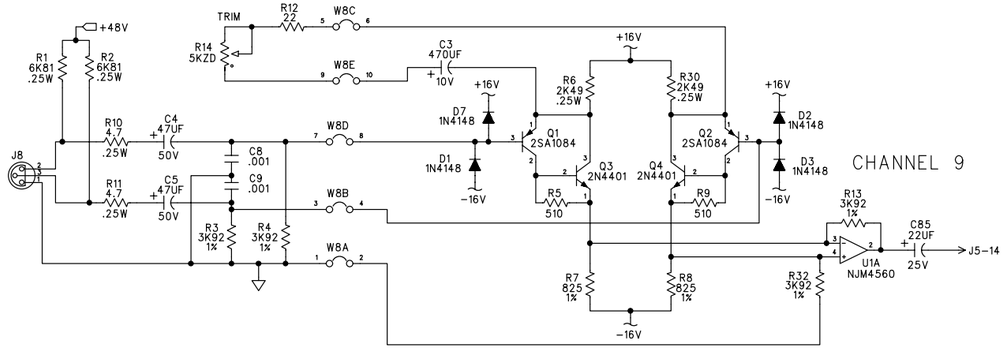
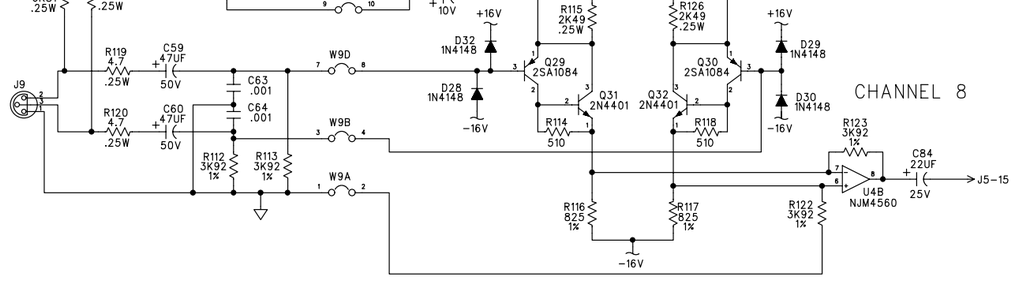
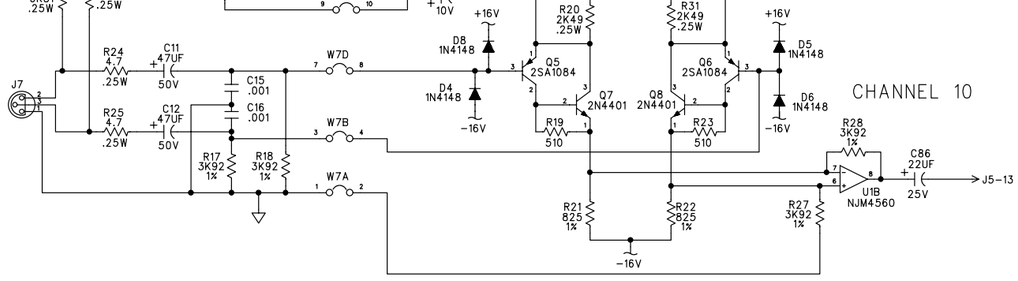
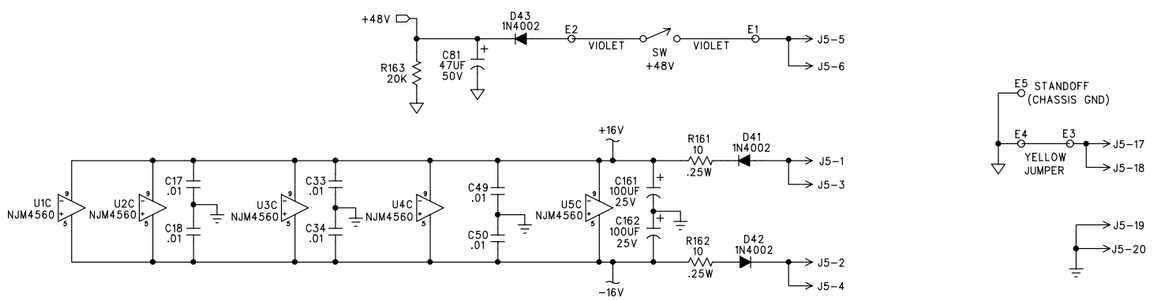
	J	INCORPORATED ECO 427	KR		4-12-95











- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 706-013-00 STANDOFF, XLR10
- ☐ 610-007-00 WIRE, 6.5" VIOLET
- ☐ 610-007-00 WIRE, 6.5" VIOLET
- ☐ 610-005-00 WIRE, 2.5" YELLOW
- ☐ 450-005-00 PCB, XLR10

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA
MATERIAL: SEE NOTES
FINISH: SEE NOTES
DO NOT SCALE DRAWING

CONTRACT NO:

APPROVALS	DATE
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CHECKED:	
ISSUED:	
ENG:	
MFG:	

Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
XLR-10

SIZE D | DWG. NO. 990-005-00 | REV. J
SCALE: NONE | SHEET 1 OF 2

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BACK

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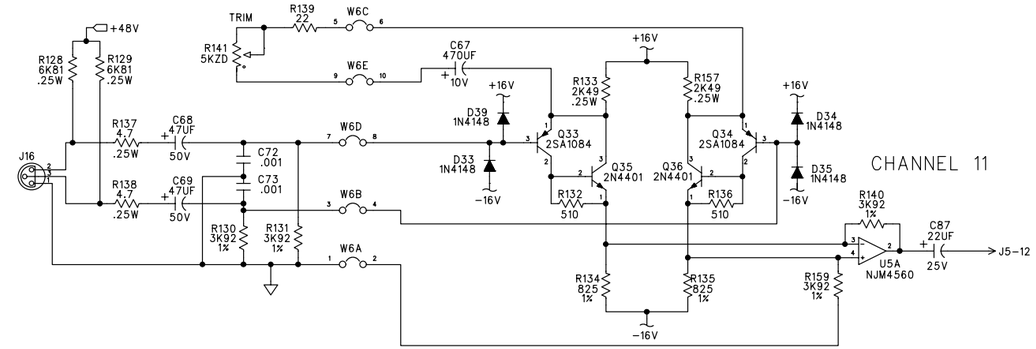

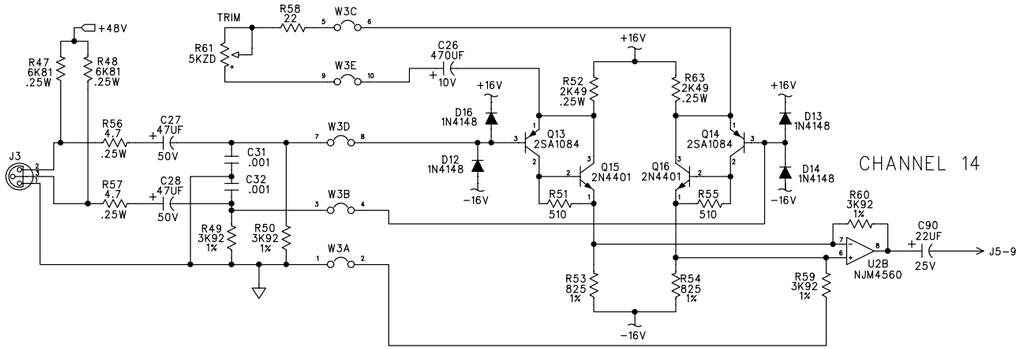

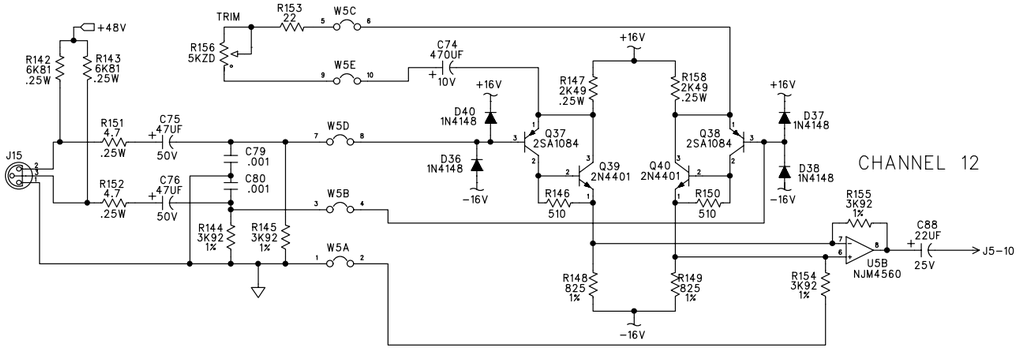

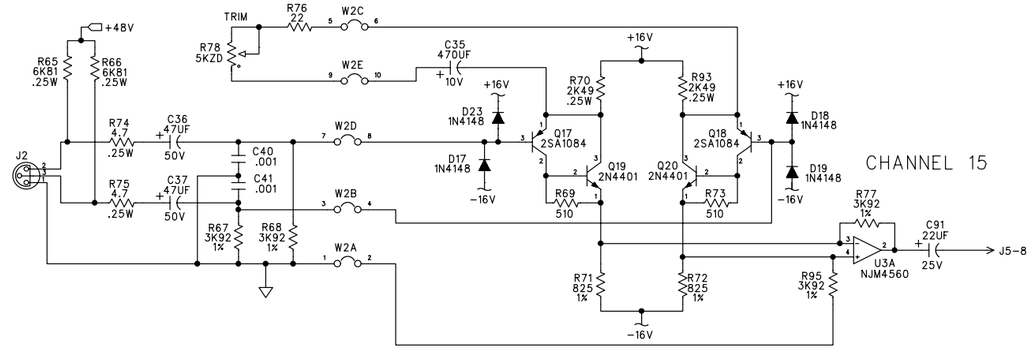

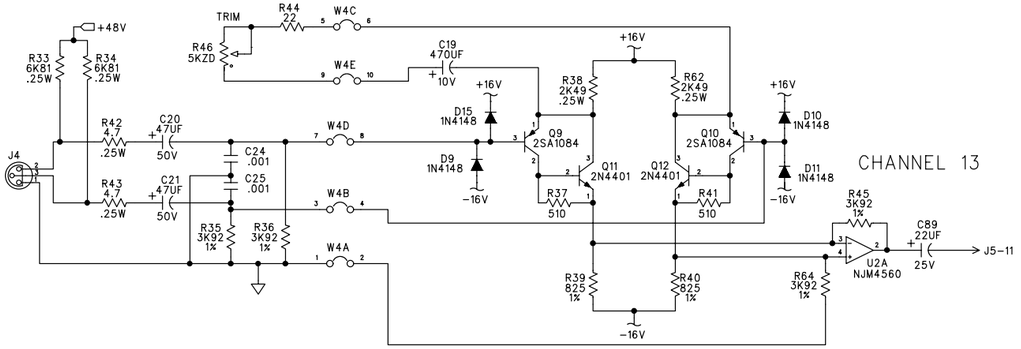

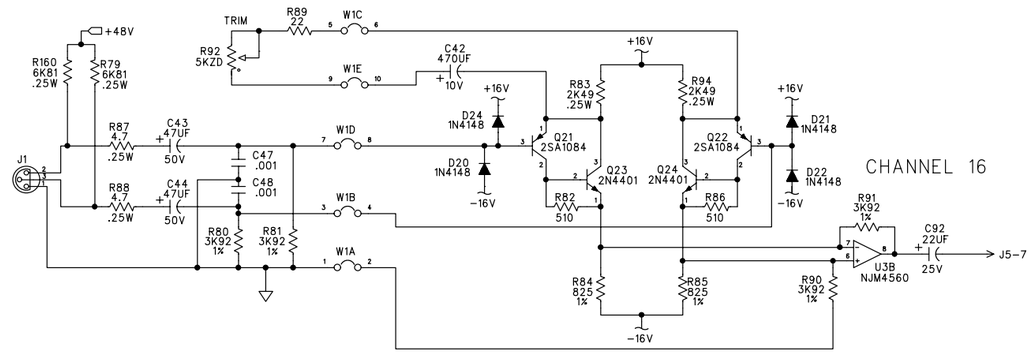

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FINISH: SEE NOTES	DRAWN: KR 1-10-95
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	ISSUED:
	ENG:
	MFG:

MACKIE. Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
XLR-10

SIZE	DWG. NO.	REV.
D	990-005-00	J

SCALE: NONE SHEET 2 OF 2

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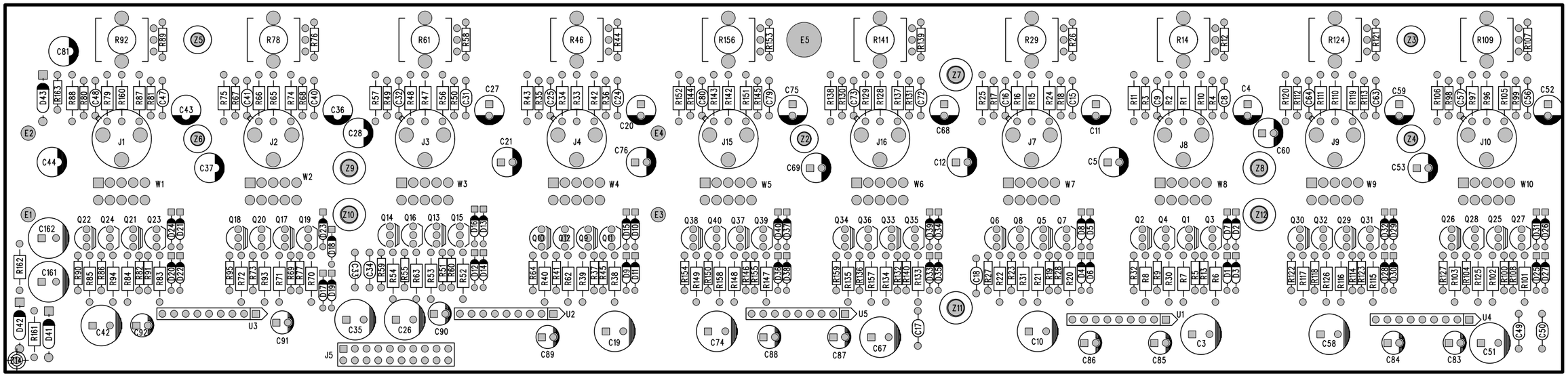

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DWG. NO.	SHT	REV:
990-004-00	1	L

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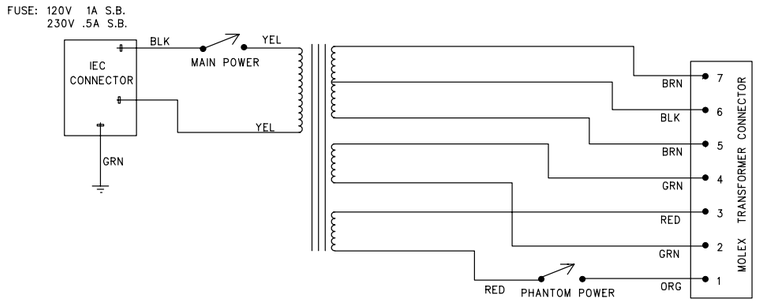
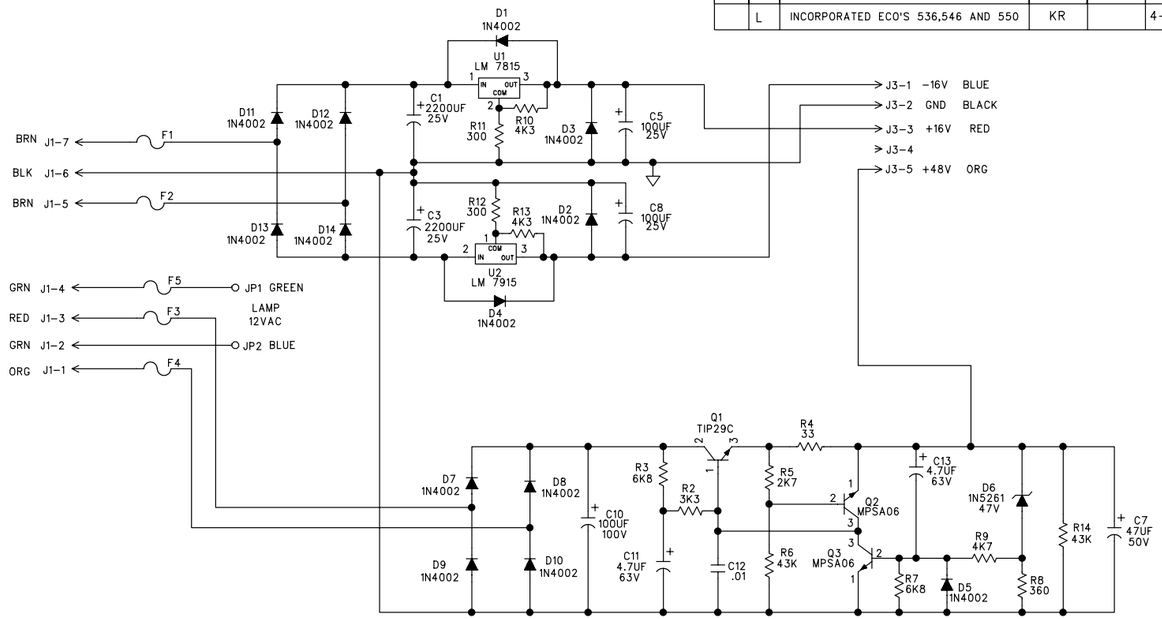
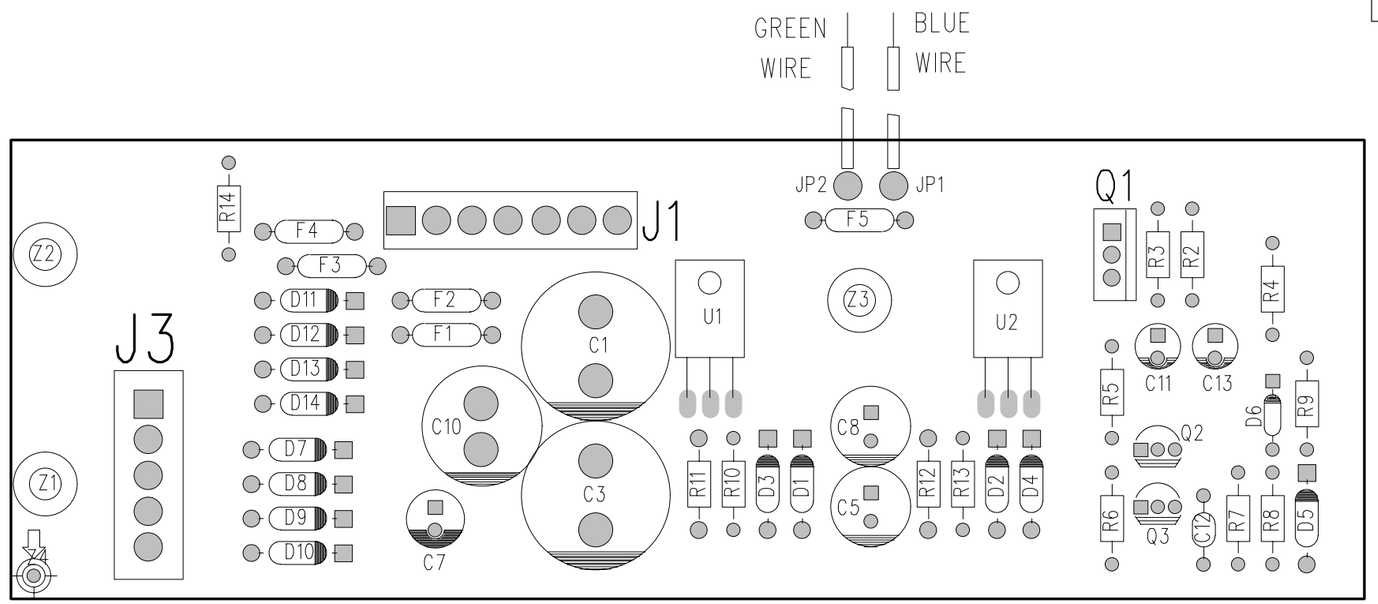
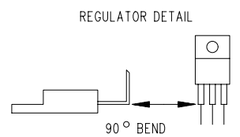
	L	INCORPORATED ECO'S 536,546 AND 550	KR		4-6-95









☐ 450-004-00 PCB, CR1604 POWER SUPPLY
☐ 610-008-00 BLUE WIRE 3.5
☐ 610-006-00 GREEN WIRE 3.0

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA	CONTRACT NO:	MACKIE. Mackie Designs Inc. Woodinville, Wa.
MATERIAL: SEE NOTES	APPROVALS / DATE	SCHEMATIC CR1604 POWER SUPPLY
FINISH: SEE NOTES	DRAWN: KR 4-6-95	SIZE D · DWG. NO. 990-004-00 · REV. L
DO NOT SCALE DRAWING	CHECKED: / ISSUED: / ENG: / MFG:	SCALE: NONE · SHEET 1 OF 1

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DWG. NO.	SHT	REV:
990-003-00	1	H

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
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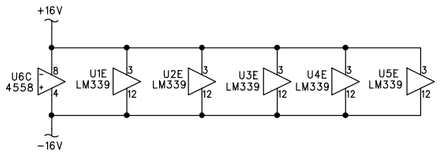
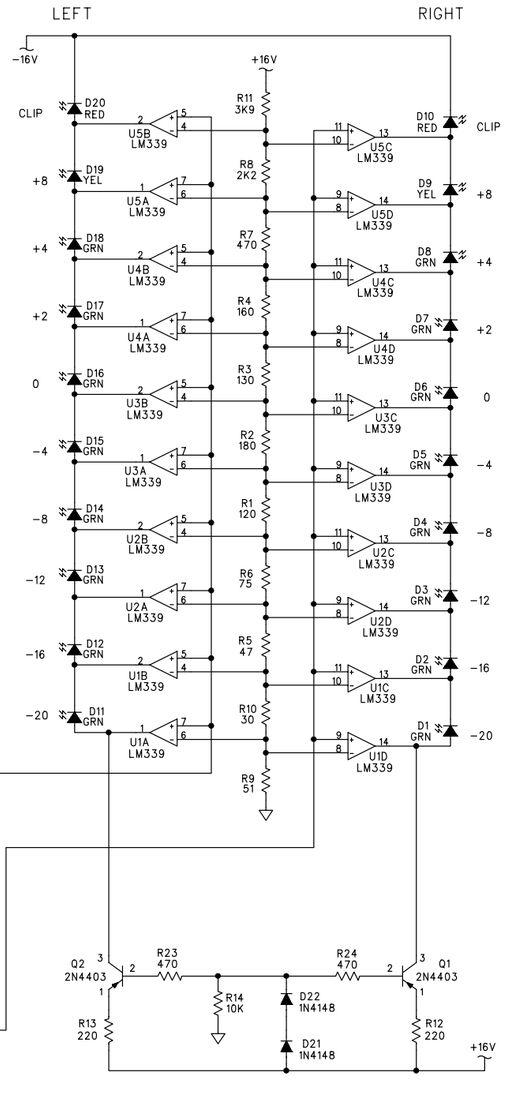
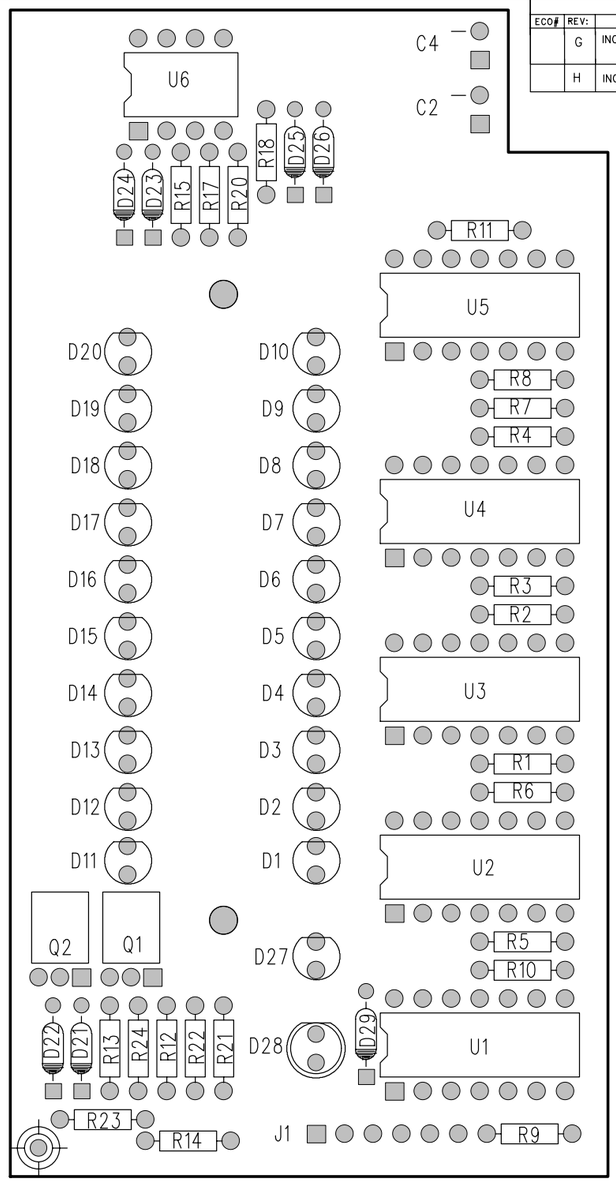
	H	INCORPORATED ECO 542	KR		3-30-95







706-008-00 STANDOFF, SWAGE

706-008-00 STANDOFF, SWAGE

450-003-00 PCB, CR1604 METER

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 ±NA .XXX ±.005 ANGLES: ±NA

MATERIAL: SEE NOTES

FINISH: SEE NOTES

DO NOT SCALE DRAWING

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CHECKED:	
ISSUED:	
ENG:	
MFG:	

MACKIE.
Mackie Designs Inc. Woodinville, Wa.

SCHEMATIC
CR-1604 METER

SIZE	DWG. NO.	REV.
D	990-003-00	H

SCALE: NONE SHEET 1 OF 1

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MACKIE

1604-VLZ™

16 CHANNEL MIC/LINE MIXER

SERVICE MANUAL

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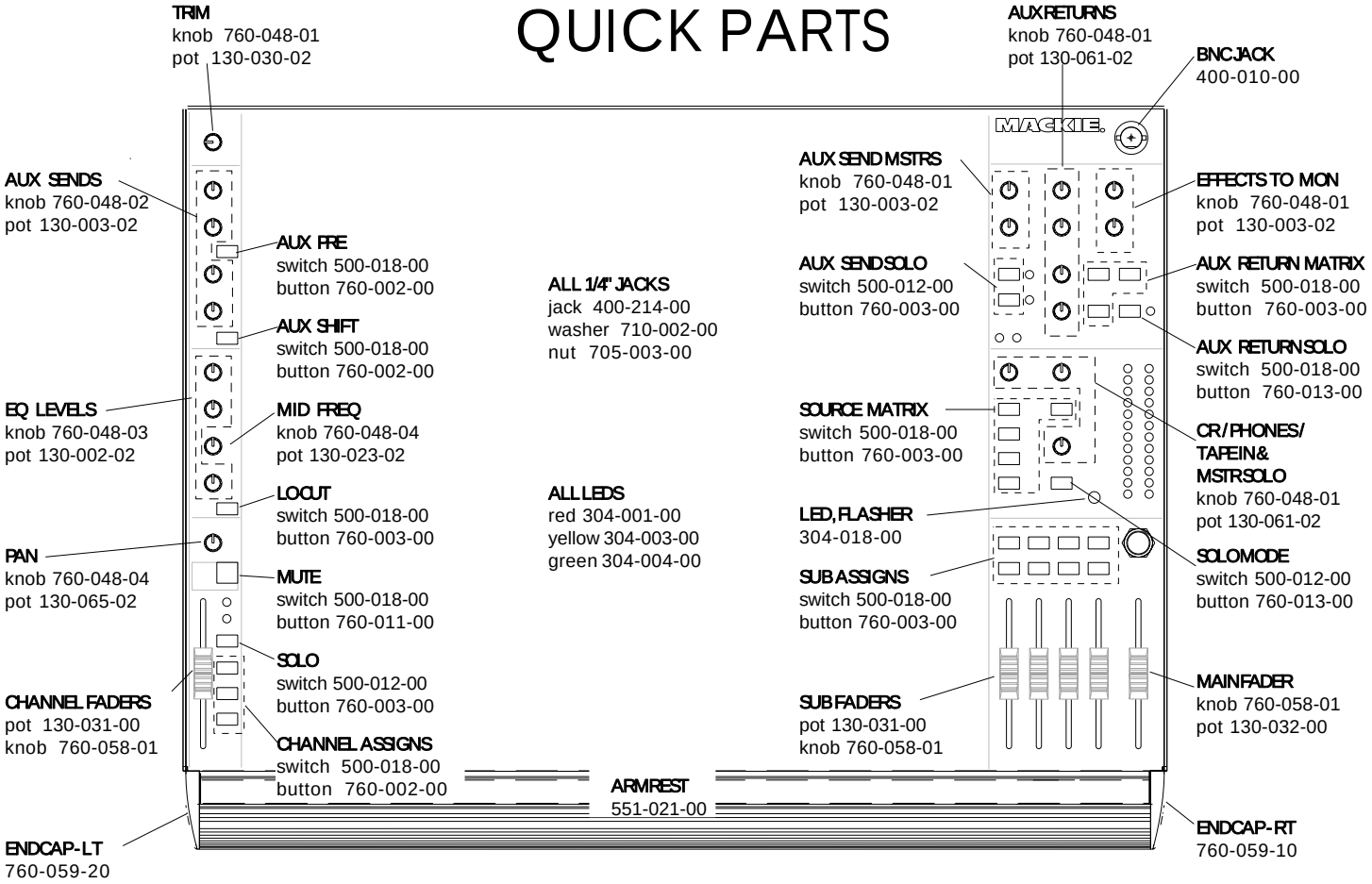
MACKIE DESIGNS INC., 16220 WOOD-RED ROAD, WOODINVILLE, WA 98072, USA
820-172-00 05/99

HOME

QUICK PARTS



POD COMPONENTS...

ALL 1/4" JACKS
jack 400-214-00
washer710-00200
nut 705-003-00

FEMALE XLR INPUT
400-223-00

RCA IN/OUT
400-022-00

IEC RECEPTICLE
400-009-00

PWR SWITCH
500-013-00

PHANTOM SW
500-016-00

MONO OUTPUT
knob 760-007-00
pot 130-062-02

INTERNAL PARTS..

TRANSFORMER
100V 080-008-02
120V 080-008-00
230V 080-008-01

PCB - POD
055-219-00-01

PCB - MAIN
055-220-00-01

PCB - PWR
055-066-00

SCREW PLACEMENT....

TOP ALLEN SCREWS
700-011-00

SIDE SCREWS
700-006-00

XLR SCREWS
700-005-00

BOTTOM SCREWS
701-002-00

END CAP SCREWS
700-010-06

STAR GROUND
screw 700-031-01
nut 705-001-00

SIDE POD SCREWS
700-004-00

PLATE SCREWS
700-010-00

METAL...

CHASSIS BOTTOM
550-173-00

POD BOTTOM
550-175-00

CHASSIS TOP
550-172-10

POD TOP
550-174-00

CABLE PLATE
550-176-00

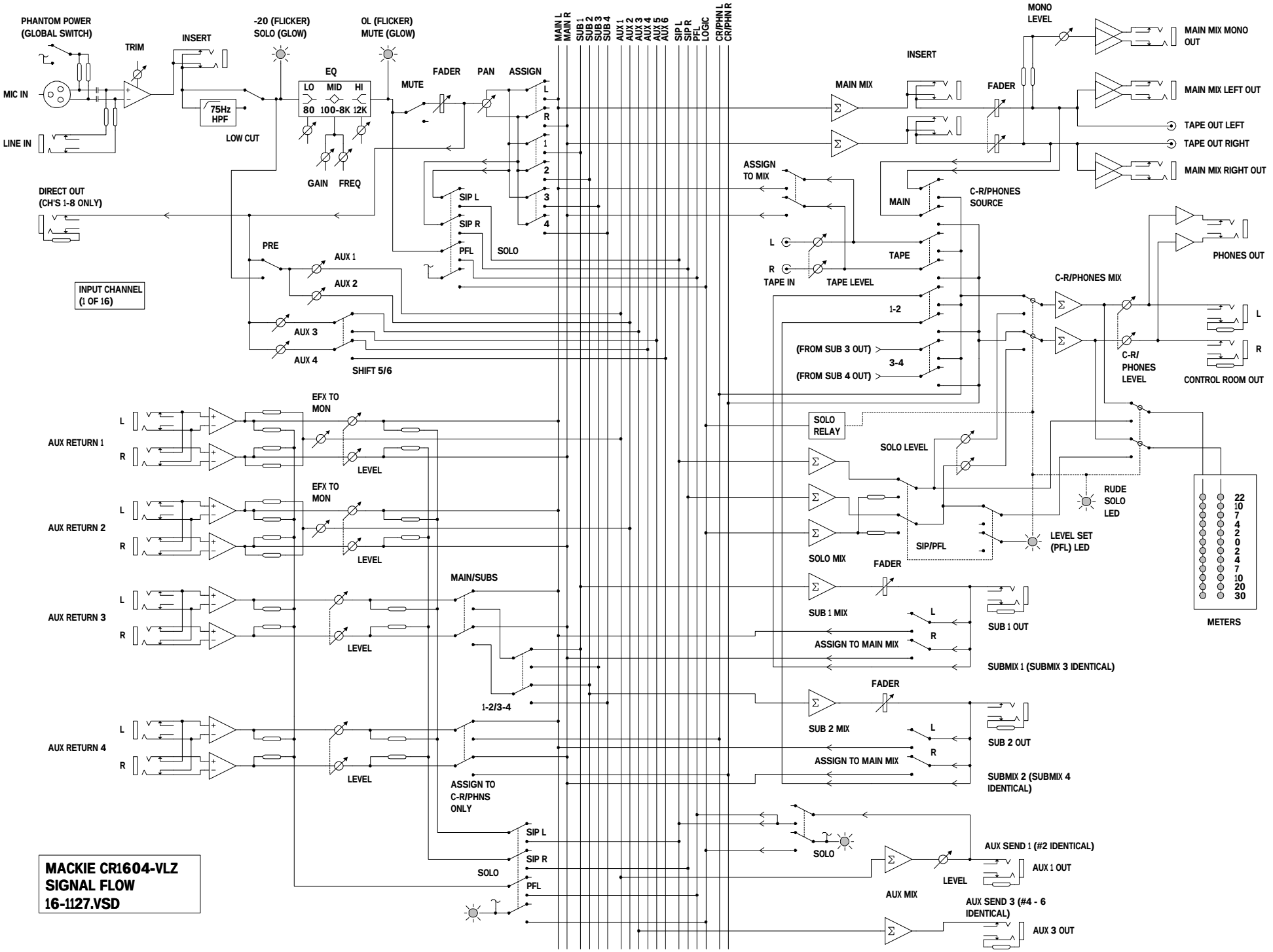
BUMPON
750-001-00

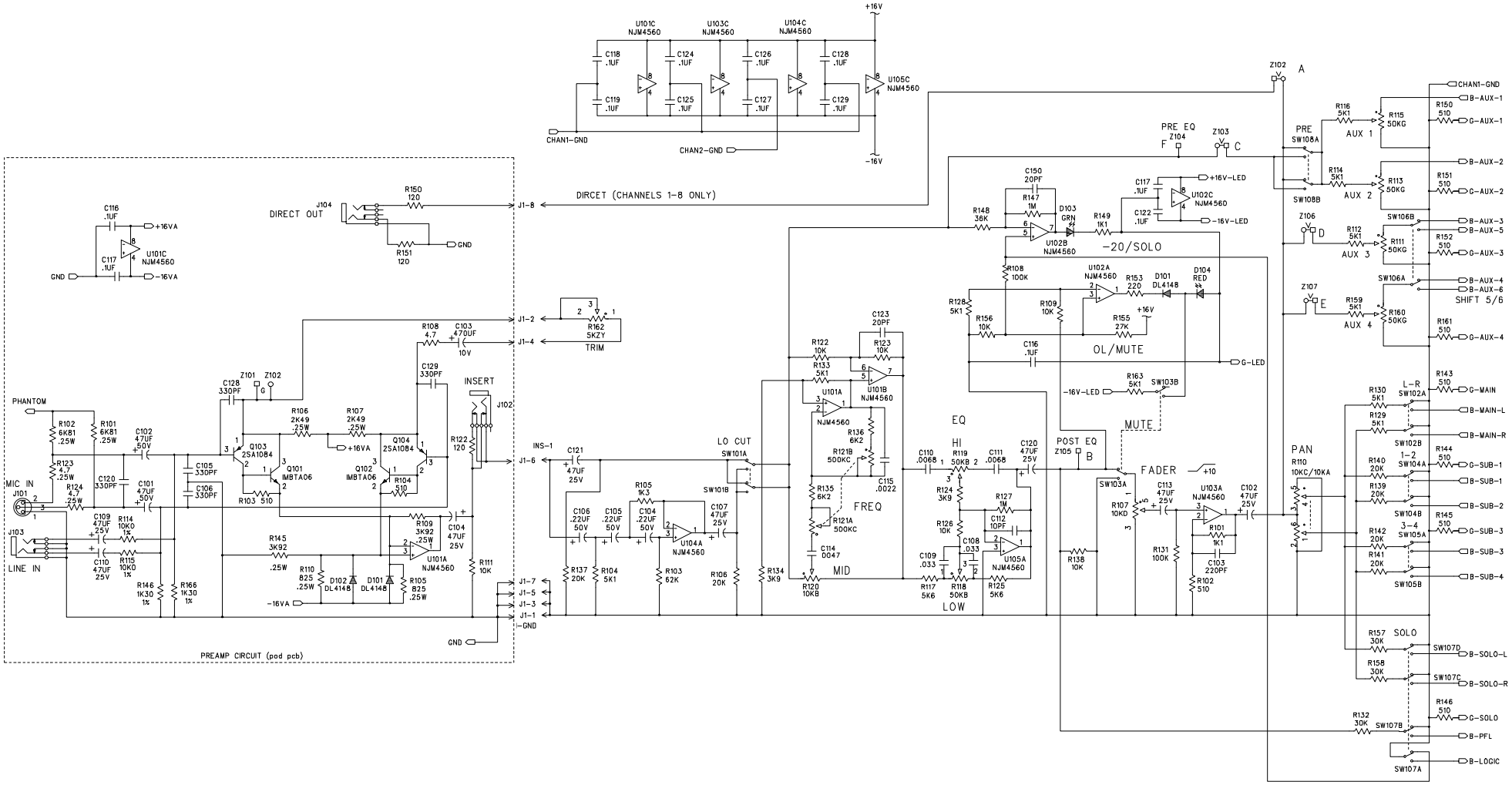
MISC...
ROTO RACK EARS
L - 550-179-00
R- 550-180-00
RACK EARS
550-177-00 (X2)

AC LINE CORD
(120V) 640-001-00

OWNER'S MANUAL
820-034-01

05/99


PHANTOM POWER (GLOBAL SWITCH)
TRIM
INSERT
-20 (FLICKER) SOLO (GLOW)
OL (FLICKER) MUTE (GLOW)
MAIN L
MAIN R
SUB 1
SUB 2
SUB 3
SUB 4
AUX 1
AUX 2
AUX 3
AUX 4
AUX 5
AUX 6
SIP L
SIP R
PFL
LOGIC
CR/PHN L
CR/PHN R
MONO LEVEL
MIC IN
LINE IN
75Hz HPF
LOW CUT
EQ
LO
MID
HI
80
100-8K
12K
GAIN
FREQ
MUTE
FADER
PAN
ASSIGN
L
R
1
2
3
4
SIP L
SIP R
PFL
SOLO
MAIN MIX
INSERT
FADER
MAIN MIX MONO OUT
MAIN MIX LEFT OUT
TAPE OUT LEFT
TAPE OUT RIGHT
MAIN MIX RIGHT OUT
DIRECT OUT (CH'S 1-8 ONLY)
ASSIGN TO MIX
MAIN
C-R/PHONES SOURCE
PRE
AUX 1
AUX 2
AUX 3
AUX 4
SHIFT 5/6
INPUT CHANNEL (1 OF 16)
L
R
TAPE IN
TAPE
TAPE LEVEL
1-2
3-4
(FROM SUB 3 OUT)
(FROM SUB 4 OUT)
C-R/PHONES MIX
PHONES OUT
C-R/ PHONES LEVEL
CONTROL ROOM OUT
EFX TO MON
AUX RETURN 1
AUX RETURN 2
AUX RETURN 3
AUX RETURN 4
LEVEL
SOLO RELAY
SOLO LEVEL
RUDE SOLO LED
SOLO MIX
SIP/PFL
LEVEL SET (PFL) LED
METERS
22
10
7
4
2
0
2
4
7
10
20
30
MAIN/SUBS
1-2/3-4
FADER
SUB 1 MIX
SUB 1 OUT
ASSIGN TO MAIN MIX
SUBMIX 1 (SUBMIX 3 IDENTICAL)
SUB 2 MIX
SUB 2 OUT
SUBMIX 2 (SUBMIX 4 IDENTICAL)
ASSIGN TO C-R/PHNS ONLY
SOLO
AUX SEND 1 (#2 IDENTICAL)
AUX 1 OUT
AUX MIX
AUX SEND 3 (#4 - 6 IDENTICAL)
AUX 3 OUT
MACKIE CR1604-VLZ
SIGNAL FLOW
16-1127.VSD



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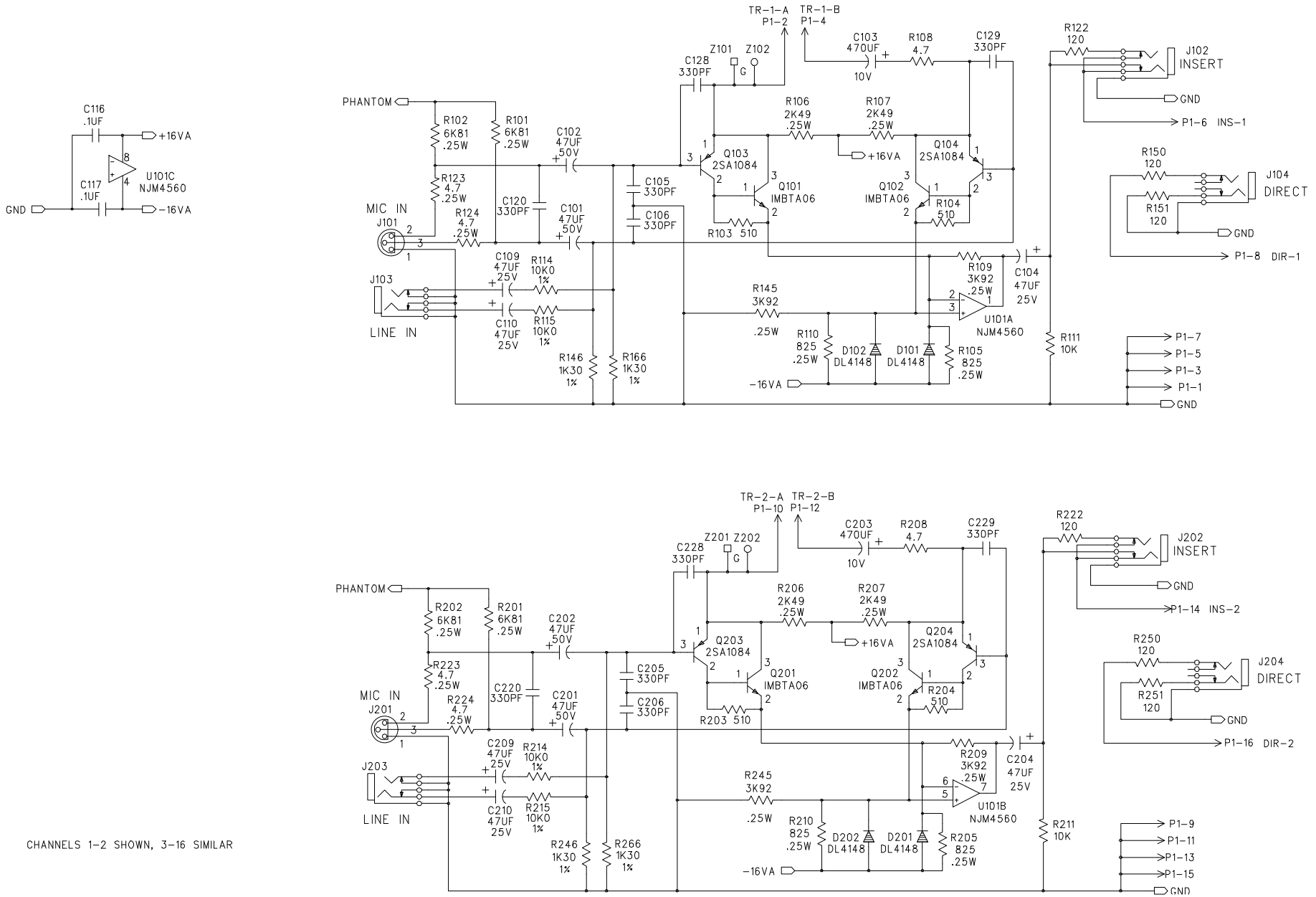
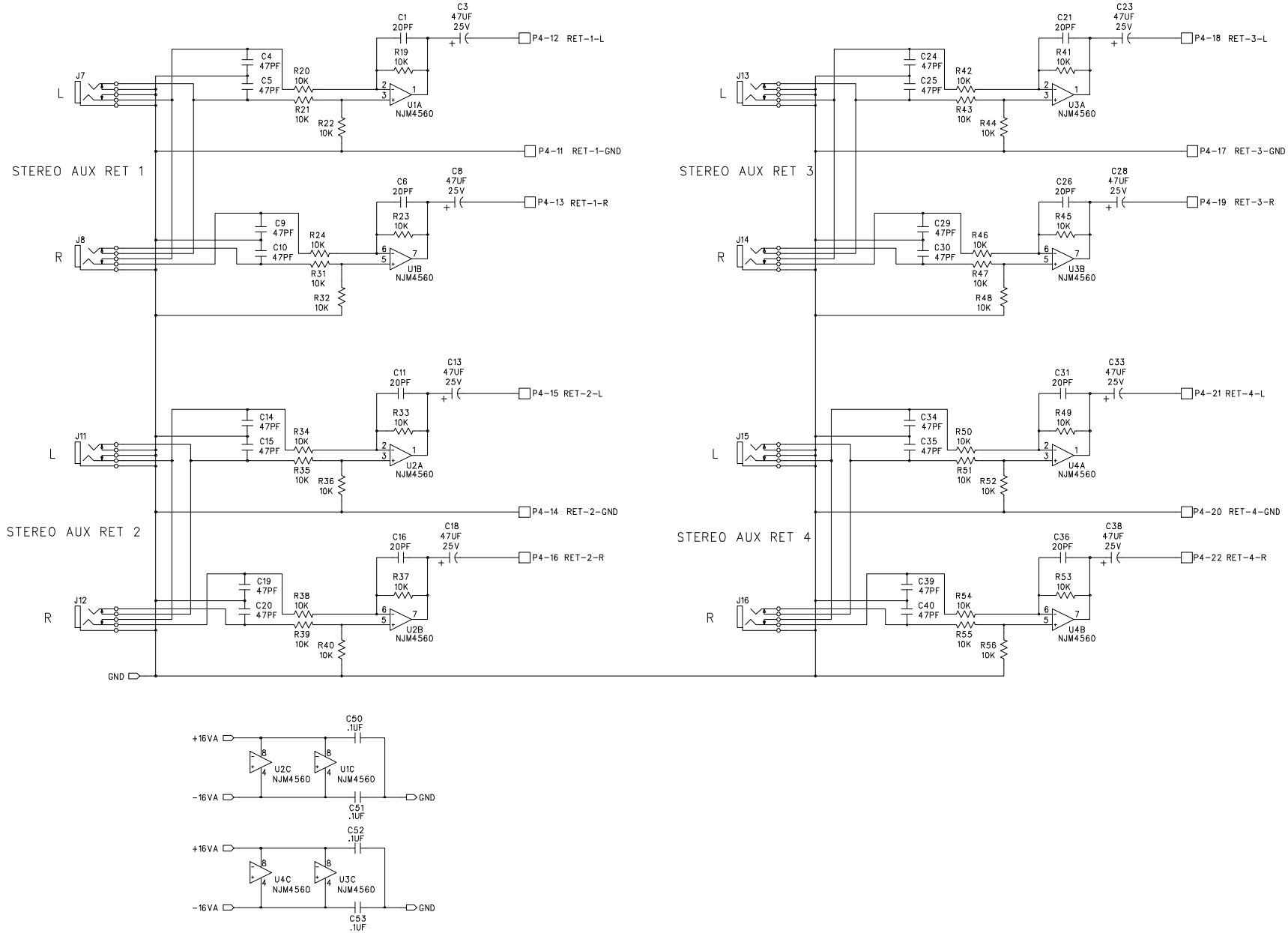
CR1604-VLZ, CHANNEL



CHANNELS 1-2 SHOWN, 3-16 SIMILAR

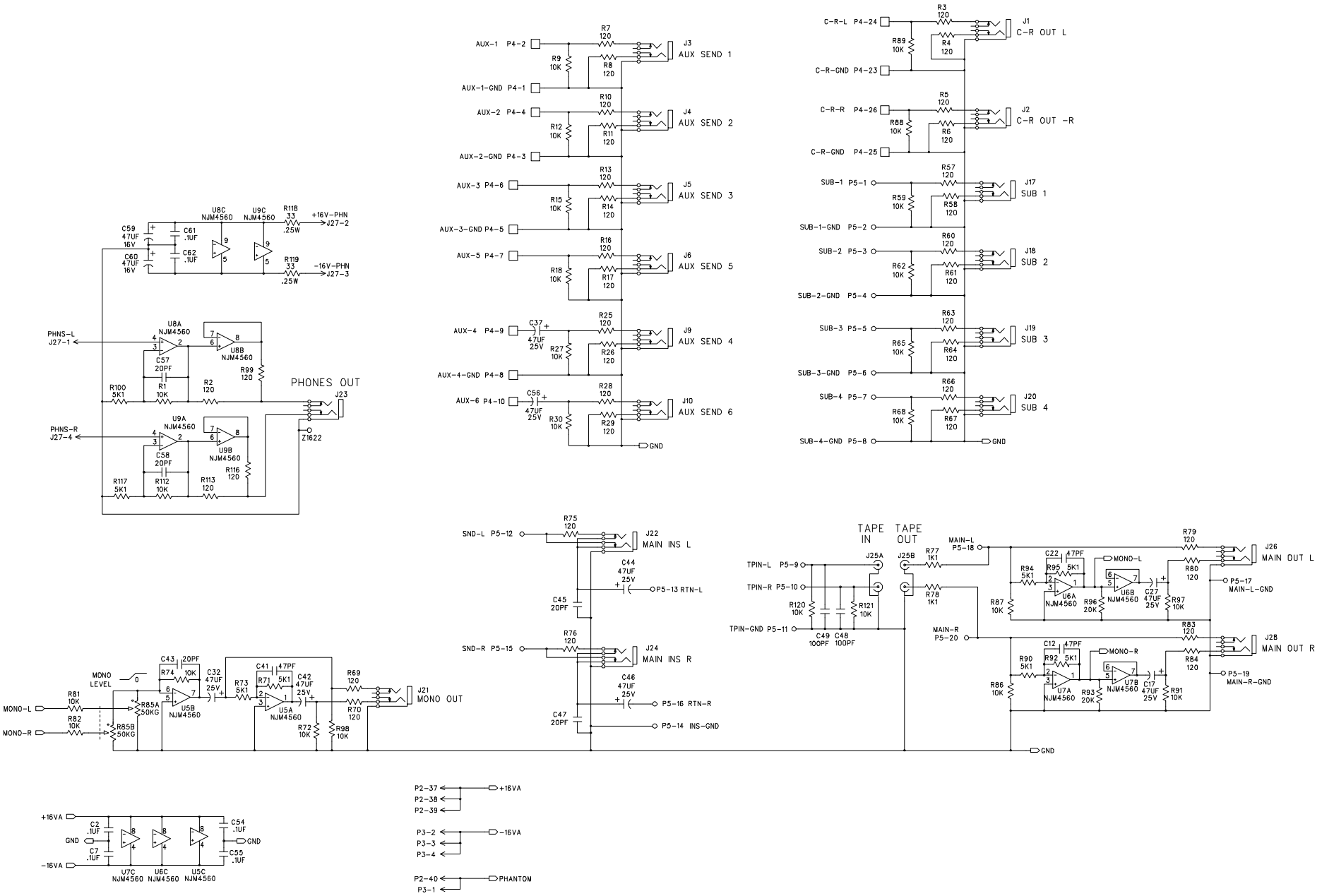
MACKIE.

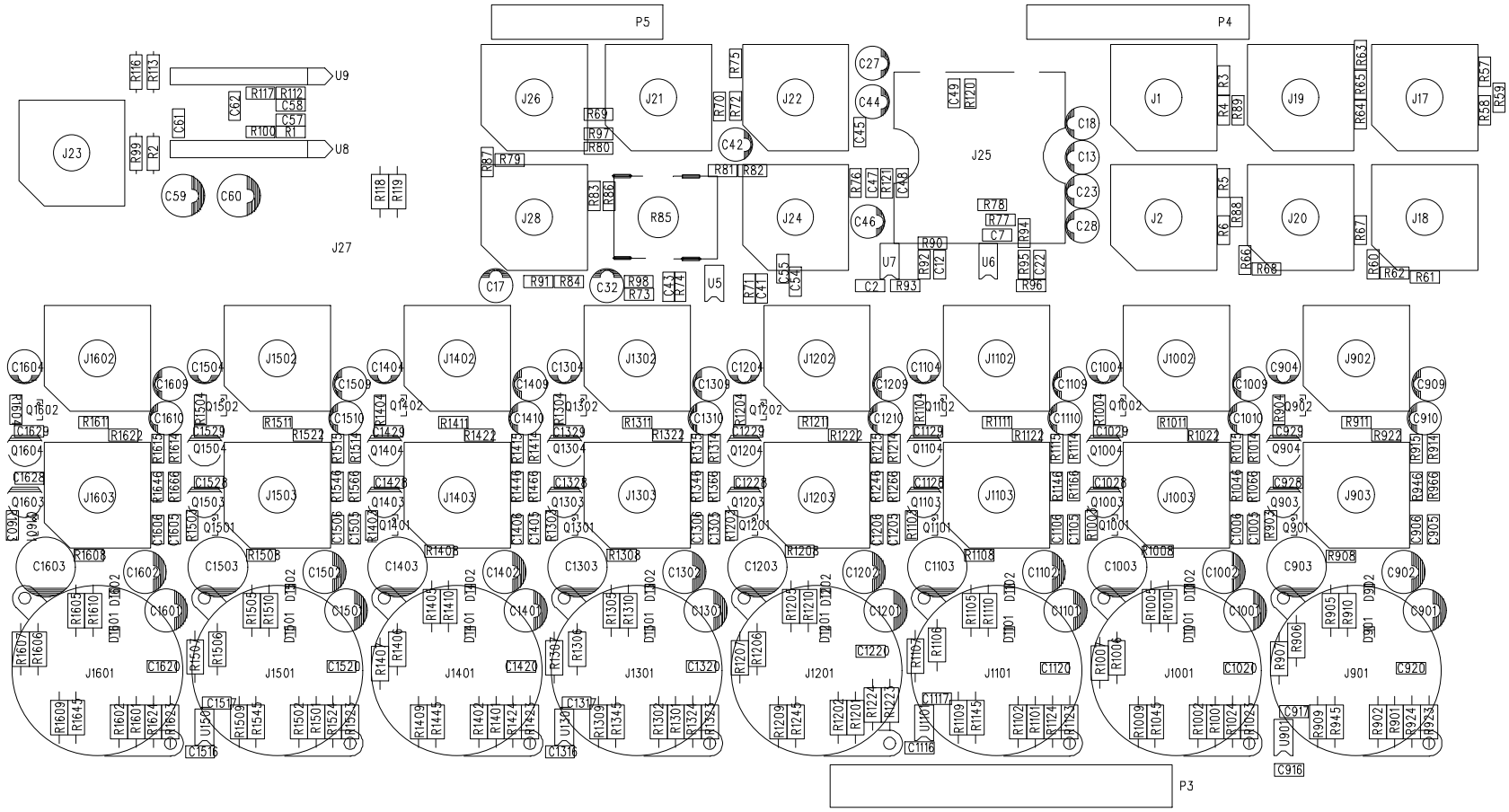
CR1604-VLZ, POD SECTION SHEET 1



MACKIE.

CR1604-VLZ, POD SECTION, SHEET 2

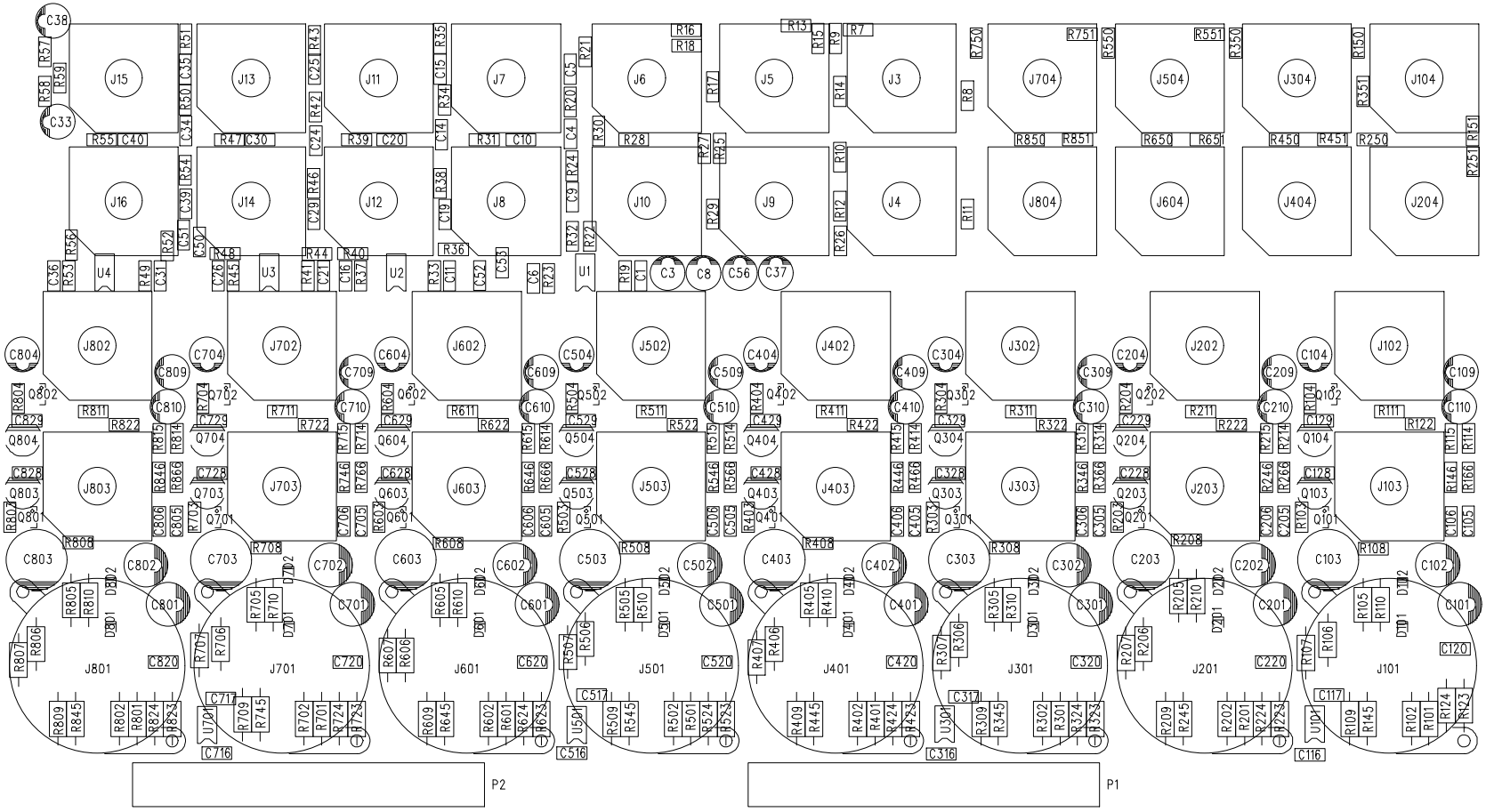

AUX-1 P4-2
AUX-1-GND P4-1
AUX-2 P4-4
AUX-2-GND P4-3
AUX-3 P4-6
AUX-3-GND P4-5
AUX-5 P4-7
AUX-4 P4-9
AUX-4-GND P4-8
AUX-6 P4-10
AUX SEND 1
AUX SEND 2
AUX SEND 3
AUX SEND 5
AUX SEND 4
AUX SEND 6
GND
C-R-L P4-24
C-R-GND P4-23
C-R-R P4-26
C-R-GND P4-25
C-R OUT L
C-R OUT -R
SUB-1 P5-1
SUB-1-GND P5-2
SUB-2 P5-3
SUB-2-GND P5-4
SUB-3 P5-5
SUB-3-GND P5-6
SUB-4 P5-7
SUB-4-GND P5-8
SUB 1
SUB 2
SUB 3
SUB 4
PHNS-L J27-1
PHNS-R J27-4
PHONES OUT
Z1622
+16V-PHN J27-2
-16V-PHN J27-3
SND-L P5-12
SND-R P5-15
MAIN INS L
MAIN INS R
P5-13 RTN-L
P5-16 RTN-R
P5-14 INS-GND
TAPE IN
TAPE OUT
TPIN-L P5-9
TPIN-R P5-10
TPIN-GND P5-11
MAIN-L P5-18
MAIN-R P5-20
MAIN OUT L
MAIN OUT R
P5-17 MAIN-L-GND
P5-19 MAIN-R-GND
MONO-L
MONO-R
MONO LEVEL
MONO OUT
+16VA
-16VA
P2-37
P2-38
P2-39
P3-2
P3-3
P3-4
P2-40
P3-1
PHANTOM



REV C

MACKIE.

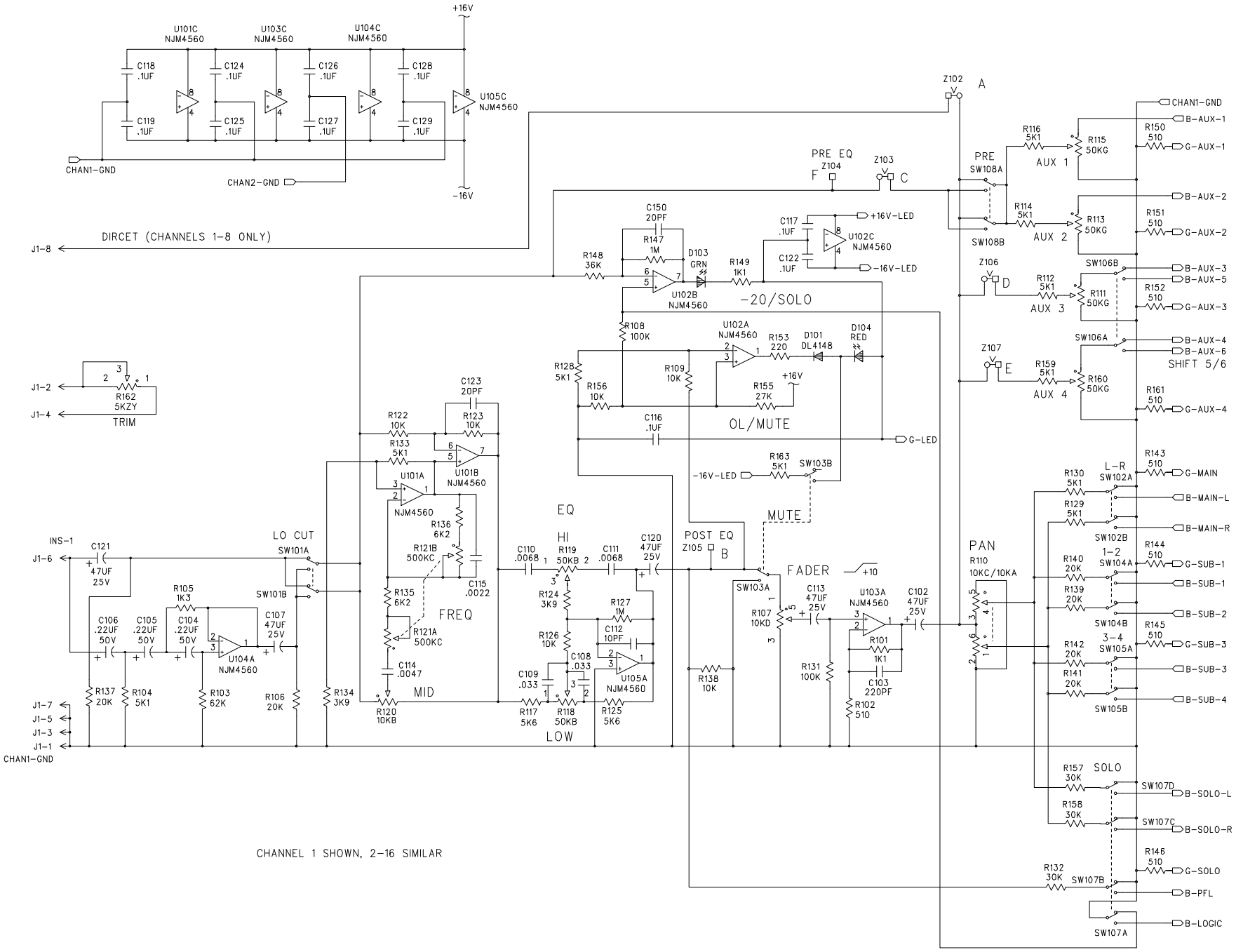
CR1604-VLZ POD PCB LAYOUT, LEFT HALF



REV C

MACKIE.

CR1604-VLZ POD PCB LAYOUT, RIGHT HALF



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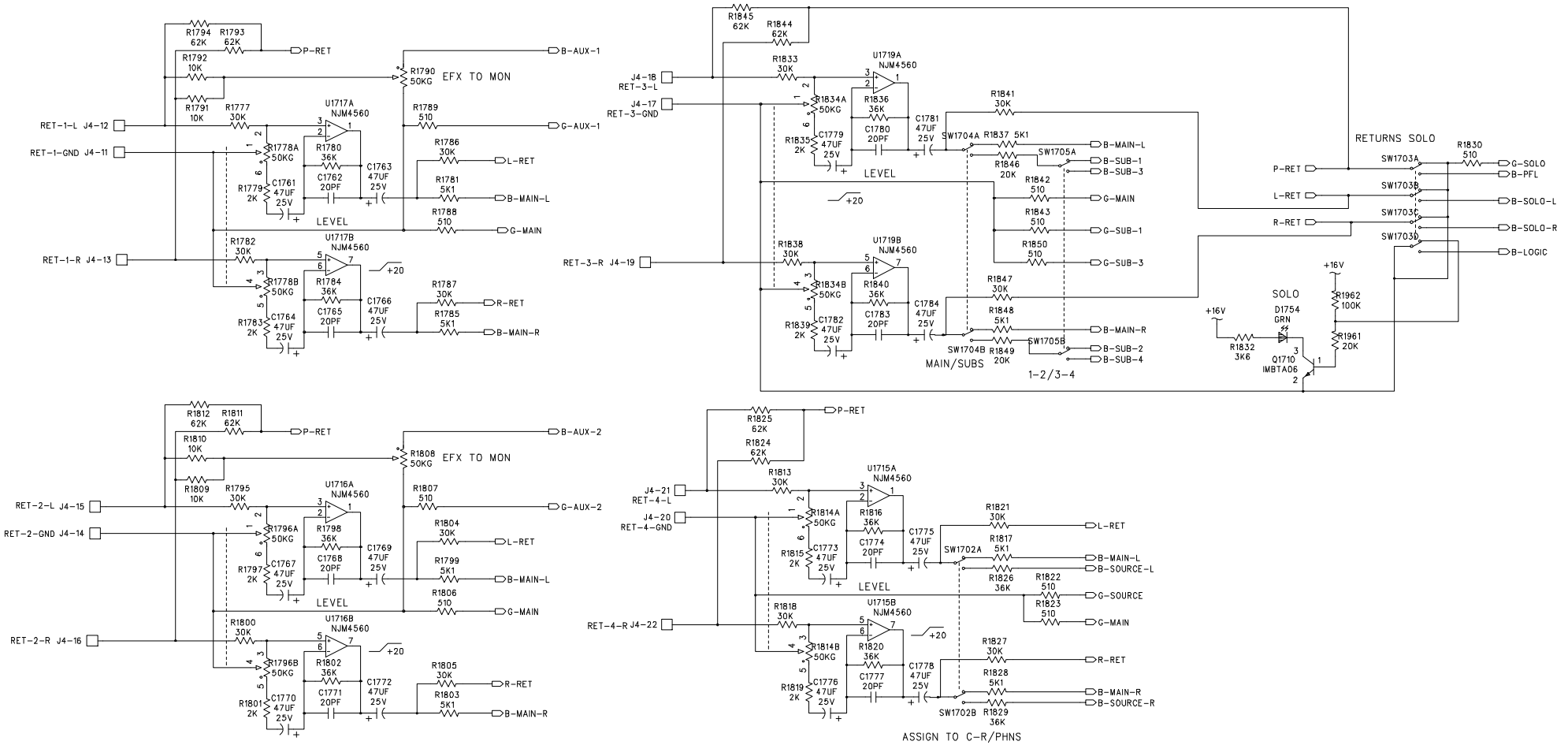
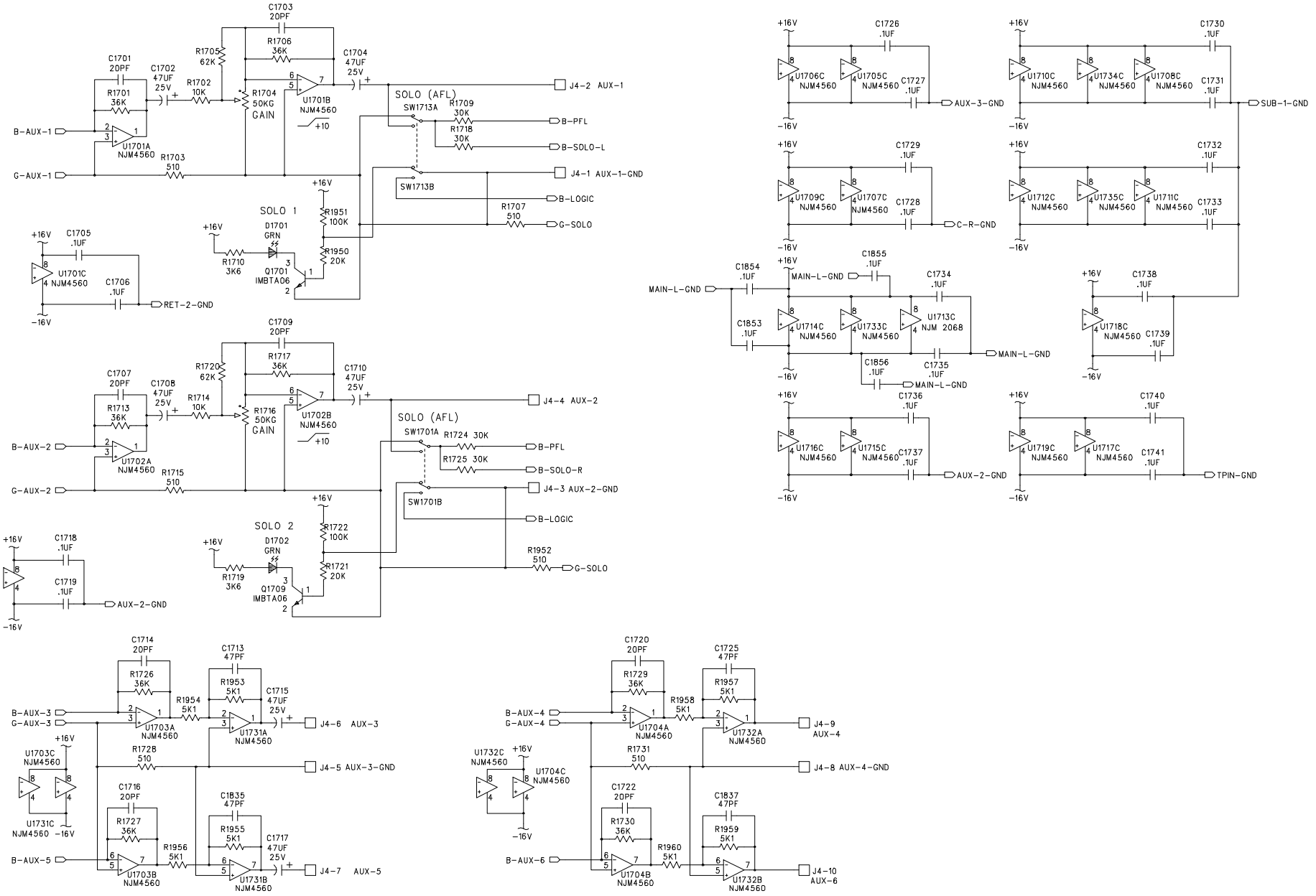
1604-VLZ MAIN SECTION, SHEET 1



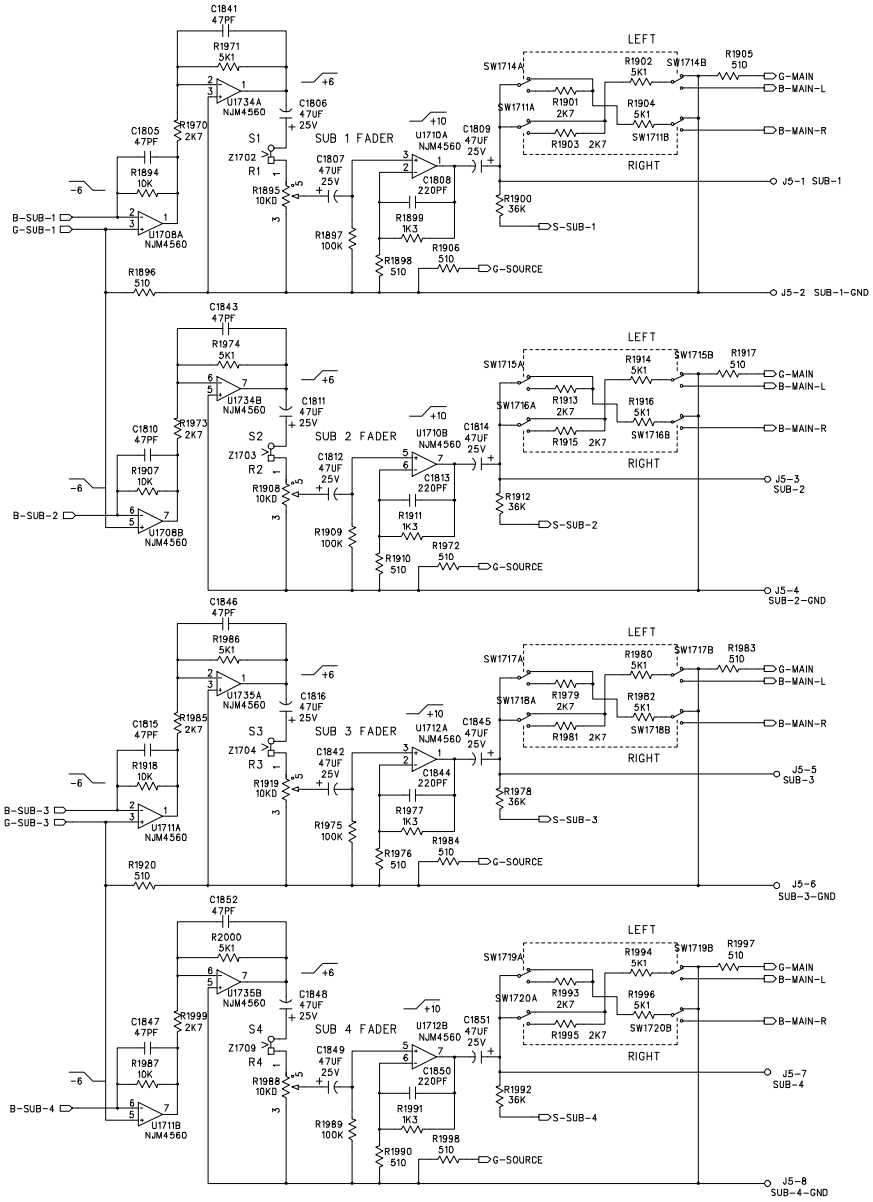
MACKIE.

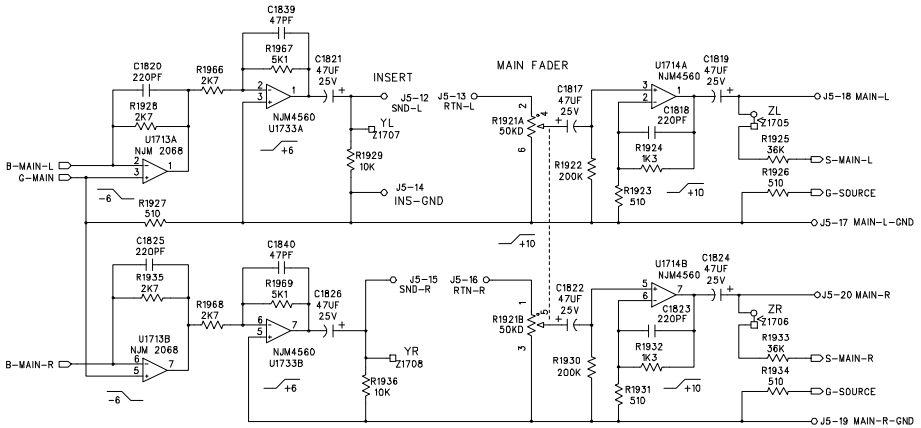
CR1604-VLZ MAIN SECTION, SHEET 2

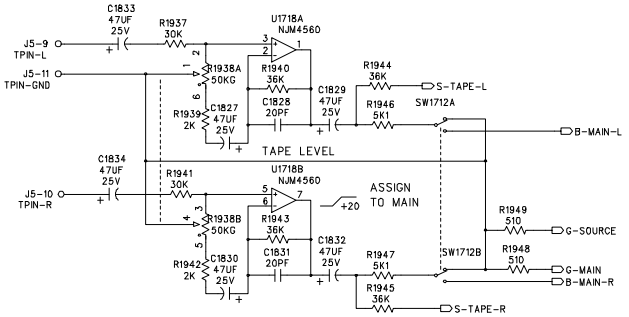


MACKIE.

CR1604-VLZ MAIN SECTION, SHEET 3

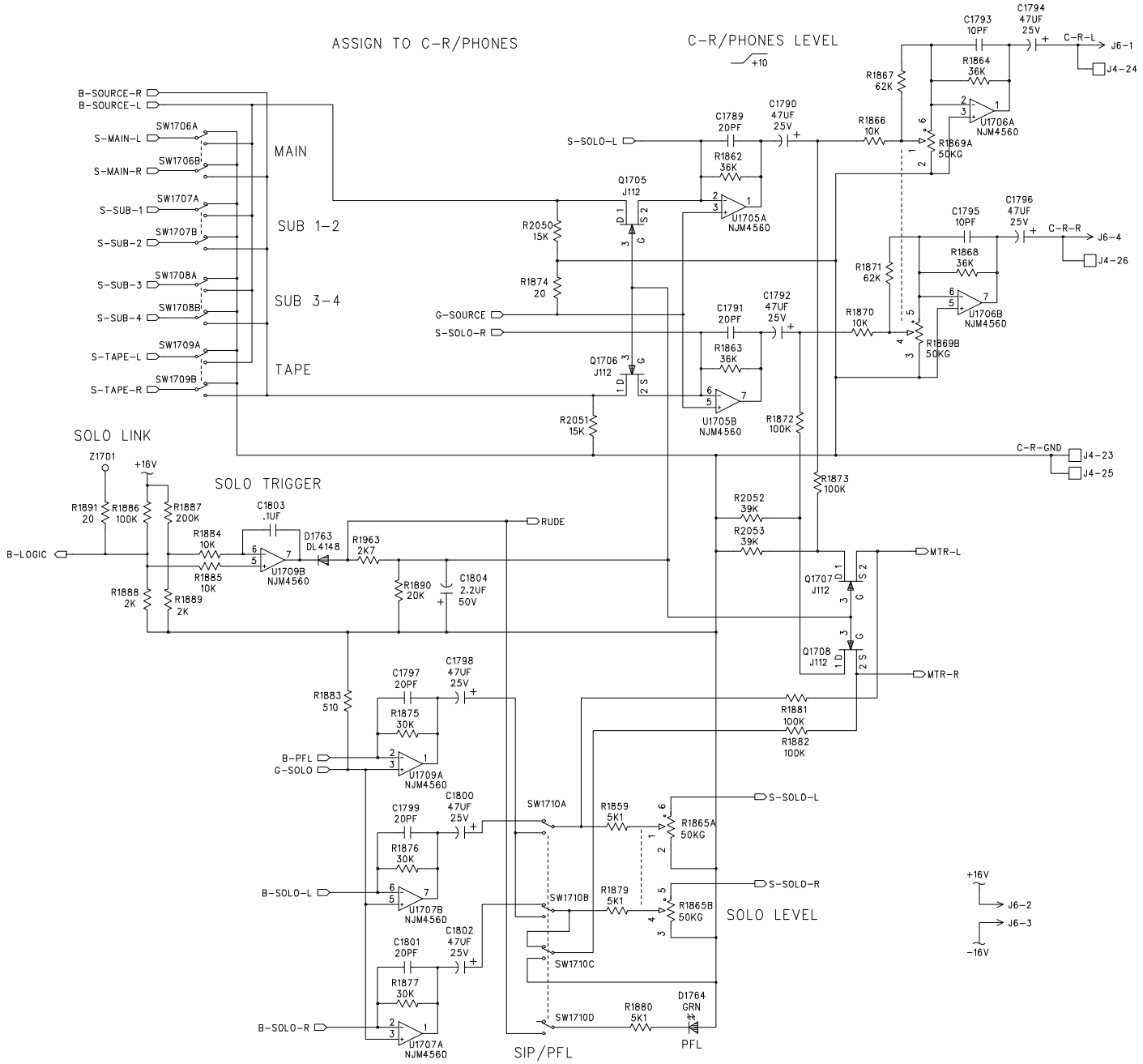






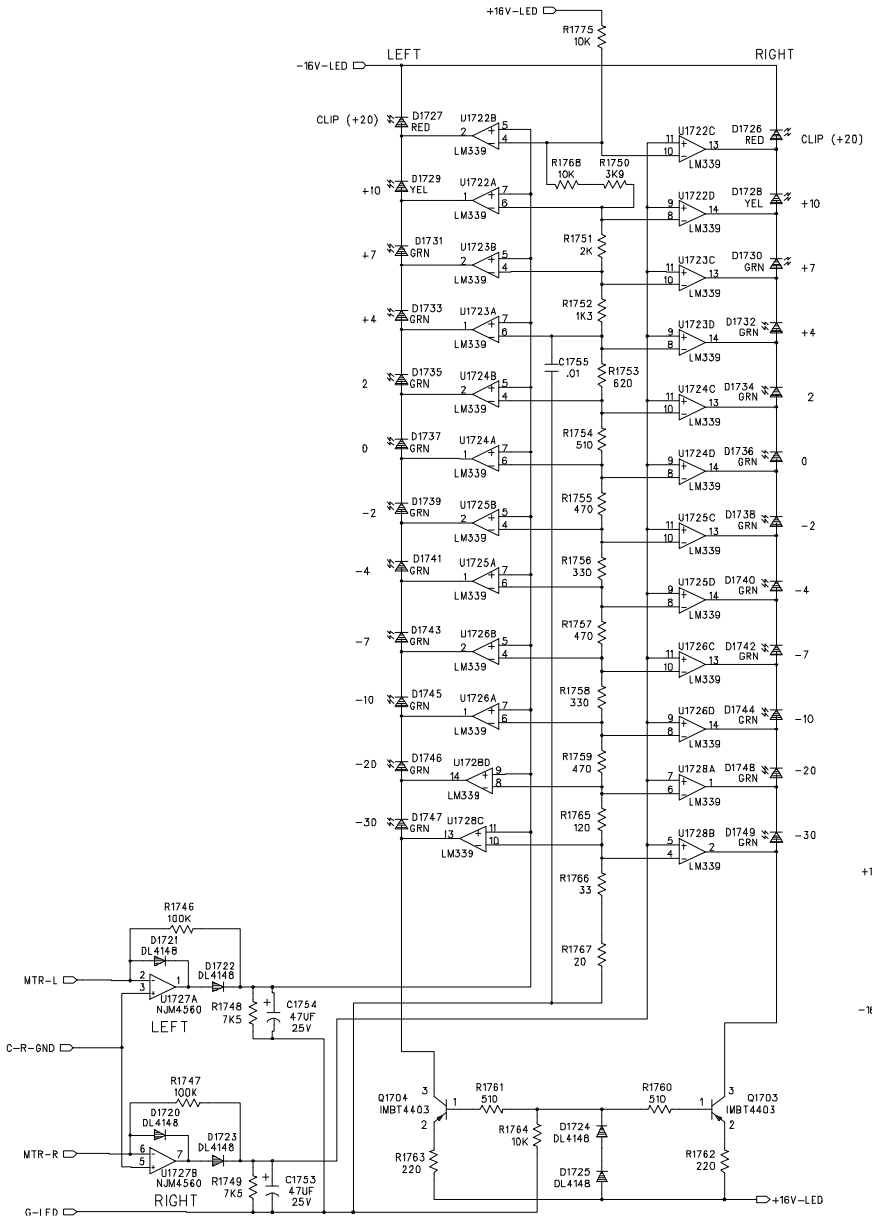
MACKIE.

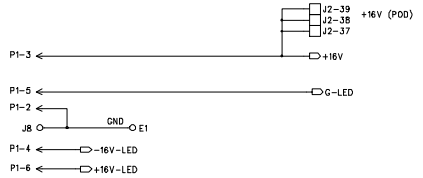
CR1604-VLZ MAIN SECTION, SHEET 4

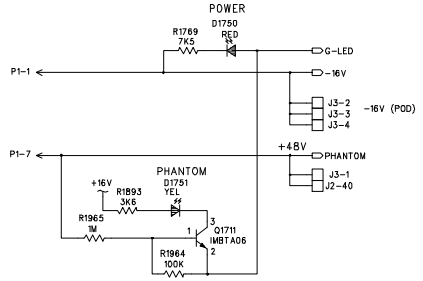


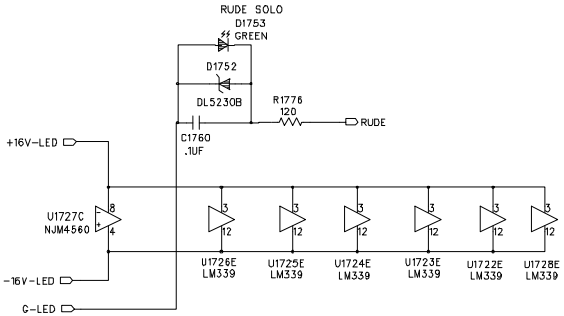
MACKIE.

CR1604-VLZ MAIN SECTION, SHEET 5









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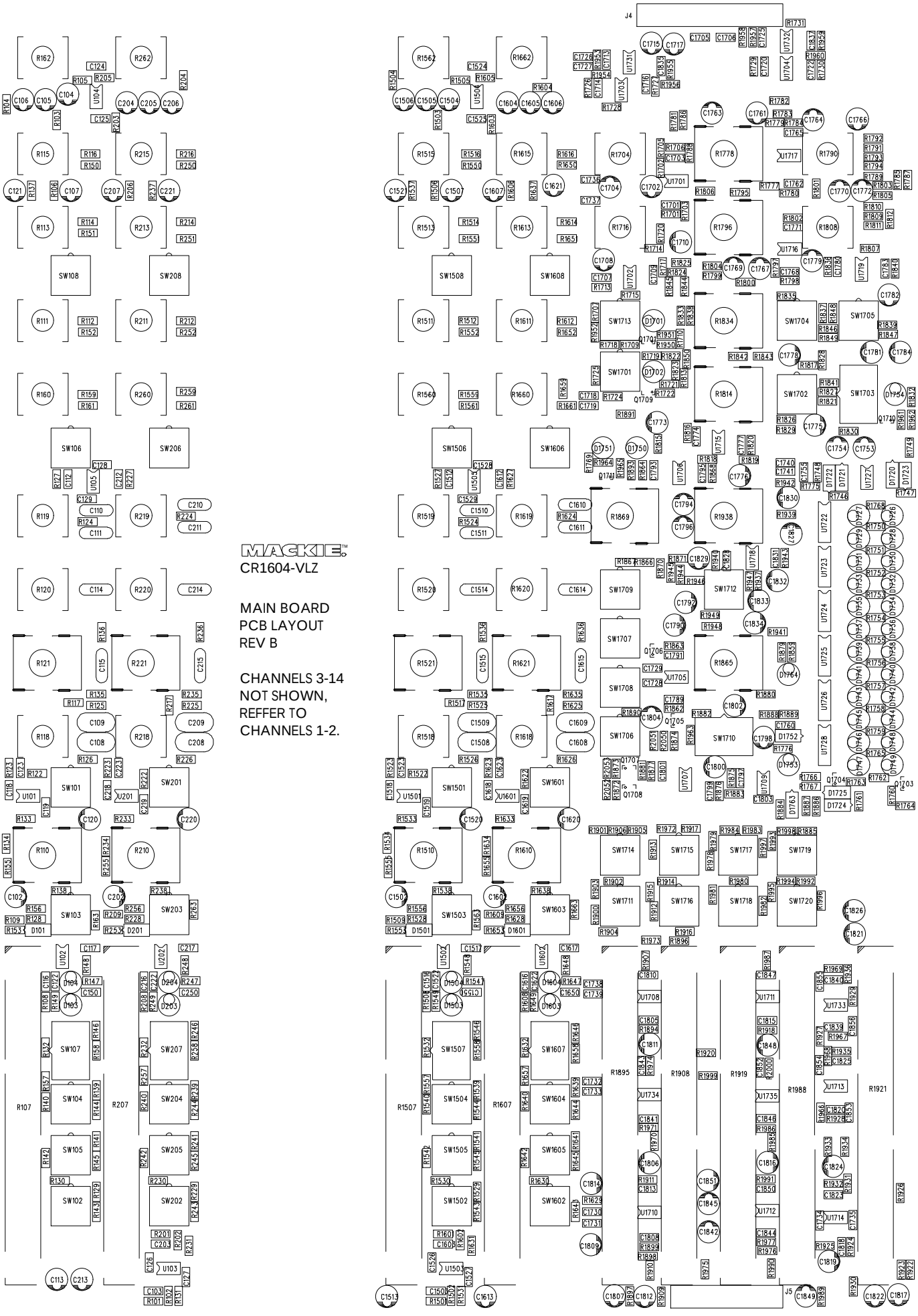
CR1604-VLZ MAIN SECTION, SHEET 6



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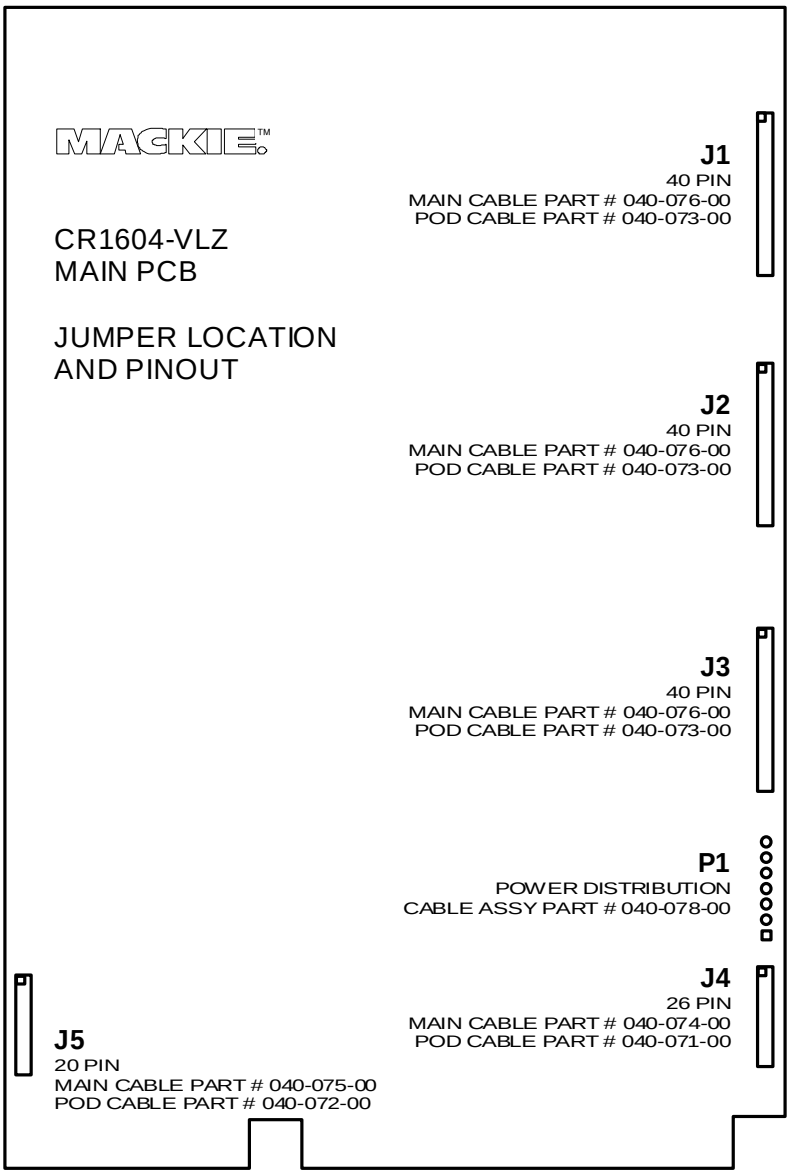
CR1604-VLZ

MAIN BOARD
PCB LAYOUT
REV B

CHANNELS 3-14
NOT SHOWN,
REFFER TO
CHANNELS 1-2.



J1

CHANNEL 1 GND	1	2	CHANNEL 1 TRIM A
CHANNEL 1 GND	3	4	CHANNEL 1 TRIM B
CHANNEL 1 GND	5	6	CHANNEL 1 IN
CHANNEL 1 GND	7	8	CHANNEL 1 DI OUT
CHANNEL 2 GND	9	10	CHANNEL 2 TRIM A
CHANNEL 2 GND	11	12	CHANNEL 2 TRIM B
CHANNEL 2 GND	13	14	CHANNEL 2 IN
CHANNEL 2 GND	15	16	CHANNEL 2 DI OUT
CHANNEL 3 GND	17	18	CHANNEL 3 TRIM A
CHANNEL 3 GND	19	20	CHANNEL 3 TRIM B
CHANNEL 3 GND	21	22	CHANNEL 3 IN
CHANNEL 3 GND	23	24	CHANNEL 3 DI OUT
CHANNEL 4 GND	25	26	CHANNEL 4 TRIM A
CHANNEL 4 GND	27	28	CHANNEL 4 TRIM B
CHANNEL 4 GND	29	30	CHANNEL 4 IN
CHANNEL 4 GND	31	32	CHANNEL 4 DI OUT
CHANNEL 5 GND	33	34	CHNNEL 5 TRIM A
CHANNEL 5 GND	35	36	CHANNEL 5 TRIM B
CHANNEL 5 GND	37	38	CHANNEL 5 IN
CHANNEL 5 GND	39	40	CHANNEL 5 DI OUT

J2

CHANNEL 6 GND	1	2	CHANNEL 6 TRIM A
CHANNEL 6 GND	3	4	CHANNEL 6 TRIM B
CHANNEL 6 GND	5	6	CHANNEL 6 IN
CHANNEL 6 GND	7	8	CHANNEL 6 DI OUT
CHANNEL 7 GND	9	10	CHANNEL 7 TRIM A
CHANNEL 7 GND	11	12	CHANNEL 7 TRIM B
CHANNEL 7 GND	13	14	CHANNEL 7 IN
CHANNEL 7 GND	15	16	CHANNEL 7 DI OUT
CHANNEL 8 GND	17	18	CHANNEL 8 TRIM A
CHANNEL 8 GND	19	20	CHANNEL 8 TRIM B
CHANNEL 8 GND	21	22	CHANNEL 8 IN
CHANNEL 8 GND	23	24	CHANNEL 8 DI OUT
CHANNEL 9 GND	25	26	CHANNEL 9 TRIM A
CHANNEL 9 GND	27	28	CHANNEL 9 TRIM B
CHANNEL 9 GND	29	30	CHANNEL 9 IN
CHANNEL 10 GND	31	32	CHANNEL 10 TRIM A
CHANNEL 10 GND	33	34	CHANNEL 10 TRIM B
CHANNEL 10 GND	35	36	CHANNEL 10 IN
+16 V	37	38	+16 V
+16 V	39	40	+48V PHANTOM PWR

J3

+48V PHANTOM PWR	1	2	-16V
-16V	3	4	-16V
CHANNEL 11 GND	5	6	CHANNEL 11 TRIM A
CHANNEL 11 GND	7	8	CHANNEL 11 TRIM B
CHANNEL 11 GND	9	10	CHANNEL 11 IN
CHANNEL 12 GND	11	12	CHANNEL 12 TRIM A
CHANNEL 12 GND	13	14	CHANNEL 12 TRIM B
CHANNEL 12 GND	15	16	CHANNEL 12 IN
CHANNEL 13 GND	17	18	CHANNEL 13 TRIM A
CHANNEL 13 GND	19	20	CHANNEL 13 TRIM B
CHANNEL 13 GND	21	22	CHANNEL 13 IN
CHANNEL 14 GND	23	24	CHANNEL 14 TRIM A
CHANNEL 14 GND	25	26	CHANNEL 14 TRIM B
CHANNEL 14 GND	27	28	CHANNEL 14 IN
CHANNEL 15 GND	29	30	CHNNEL 15 TRIM A
CHANNEL 15 GND	31	32	CHANNEL 15 TRIM B
CHANNEL 15 GND	33	34	CHANNEL 15 IN
CHANNEL 16 GND	35	36	CHNNEL 16 TRIM A
CHANNEL 16 GND	37	38	CHANNEL 16 TRIM B
CHANNEL 16 GND	39	40	CHANNEL 16 IN

J4

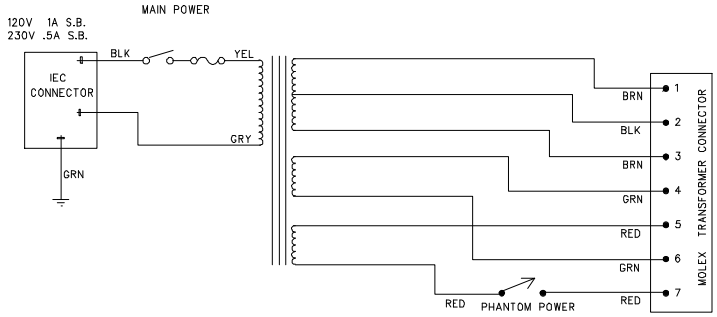
AUX 1 SEND GND	1	2	AUX 1 SEND
AUX 2 SEND GND	3	4	AUX 2 SEND
AUX 3/5 SEND GND	5	6	AUX 3 SEND
AUX 5 SEND	7	8	AUX 4/6 SEND GND
AUX 4 SEND	9	10	AUX 6 SEND
AUX RETURN 1 GND	11	12	AUX RETURN 1 LEFT
AUX RETURN 1 RIGHT	13	14	AUX RETURN 2 GND
AUX RETURN 2 LEFT	15	16	AUX RETURN 2 RIGHT
AUX RETURN 3 GND	17	18	AUX RETURN 3 LEFT
AUX RETURN 3 RIGHT	19	20	AUX RETURN 4 GND
AUX RETURN 4 LEFT	21	22	AUX RETURN 4 RIGHT
CONTROL ROOM GND	23	24	CONTROL ROOM LEFT
CONTROL ROOM GND	25	26	CONTROL ROOM RIGHT

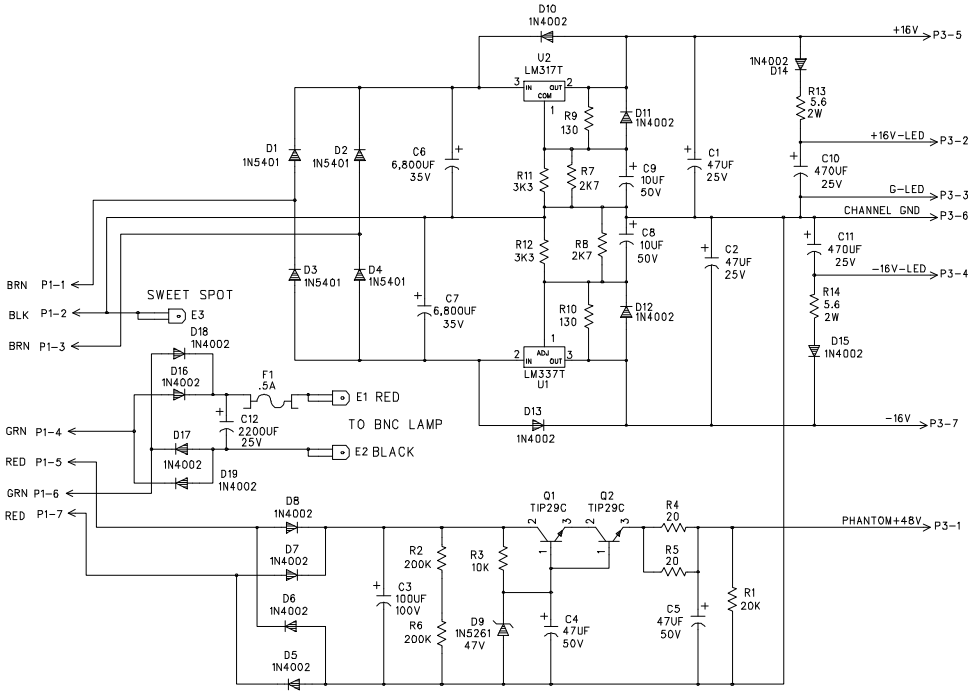
J5

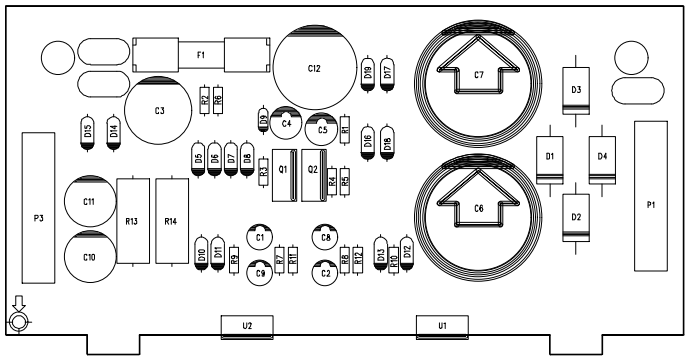
SUB 1 OUT	1	2	SUB 1 GND
SUB 2 OUT	3	4	SUB 2 OUT
SUB 3 OUT	5	6	SUB 3 GND
SUB 4 OUT	7	8	SUB 4 GND
TAPE IN LEFT	9	10	TAPE IN RIGHT
TAPE IN GND	11	12	LEFT MAIN INS SEND
LEFT MAIN INS RETURN	13	14	INSERT GND
RIGHT MAIN INS RTN	15	16	RIGHT MAIN INS SEND
MAIN L GND	17	18	MAIN L TO POD
MAIN R GND	19	20	MAIN R TO POD

P1

7	+48V PHANTOM
6	+16V LED
5	GND LED
4	-16V LED
3	+16V
2	GND
1	-16V



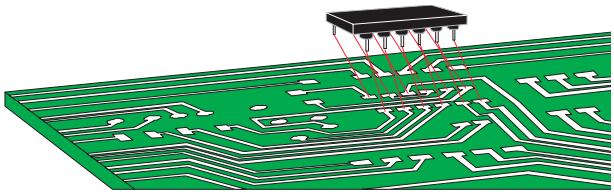




MACKIE™

CR1604-VLZ
POWER SUPPLY

MACKIE DESIGNS	PRIMARY CIRCUIT	450-066-00	B



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THE MACKIE FIXER • MACKIE DESIGNS SERVICE NEWS

1604-VLZ Auxiliary modifications

In addition to the modifications shown in the 1604-VLZ owner's manual, there are two rather lovely and optional mods for the signal routing of Aux 3/4 and 5/6.

UL Warning

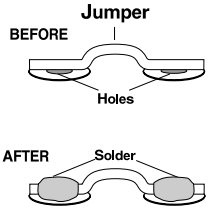
CAUTION! These modification instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing other than changing the fuse unless you are qualified to do so. Refer all servicing and modifying to qualified personnel.

Mackie Disclaimer

Any modification of any Mackie Designs product must be performed by a competent electronic technician. Mackie Designs accepts no responsibility for any damages or injuries caused by any modification, regardless of the source of the modification instructions or the qualifications of the technician performing them. In the case of such damages, Mackie Designs may declare warranty privileges void. BE CAREFUL!

About Jumpers

We recommend solid (non-stranded) insulated wire, 26–28 gauge (wire-wrapping variety). When installing jumpers, do not run their ends through holes in the circuit board. Rather, solder them flat against the desired pad (the flat silver area, possibly with a hole in the middle). Make sure the ends of these flat wires do not extend beyond the pad.



Tools required

Sharp razor (X-acto) knife, soldering iron, solder, Phillips screwdriver.

Getting ready

The following must be performed before starting the actual mods.

1. Remove all cords, including the power cable, from the 1604-VLZ.
2. Place the mixer upside-down on a dry, non-marring surface.
3. If you have converted your mixer to the rack-mount position or have installed a RotoPod, undo those changes and temporarily configure the mixer in the original desktop mode. You do not have to install the pod, just get it out of the way of the bottom cover.
4. Remove the screws that attach the bottom cover. Keep track of what screws go where. Remove the bottom cover and have at the mods shown on sheet 2.
5. When you have finished the mods, put it all back together and retest all fuctions for correct operation, making especially sure that all modified channels are working correctly.

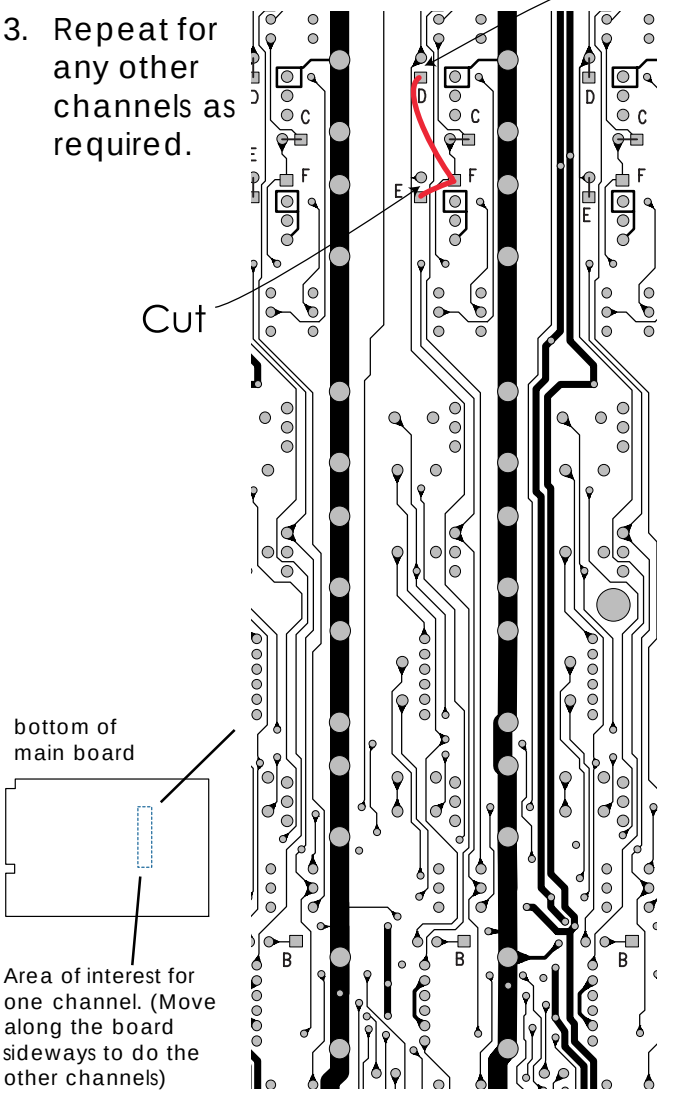
To make Aux 3/5 and Aux4/6
Pre-EQ and Pre-Fader

Aux 3/5

1. Cut the trace between the round and square pads at point **D** on the channel to be modified.
2. Solder an insulated jumper wire from the square pad at **D** to the square pad at **F** on the same channel.
3. Repeat for other channels as required.

Aux 4/6

1. Cut the trace between the round and square pads at point **E** on the channel to be modified.
2. Solder an insulated jumper wire from the square pad at **E** to the square pad at **F** on the same channel.
3. Repeat for any other channels as required.



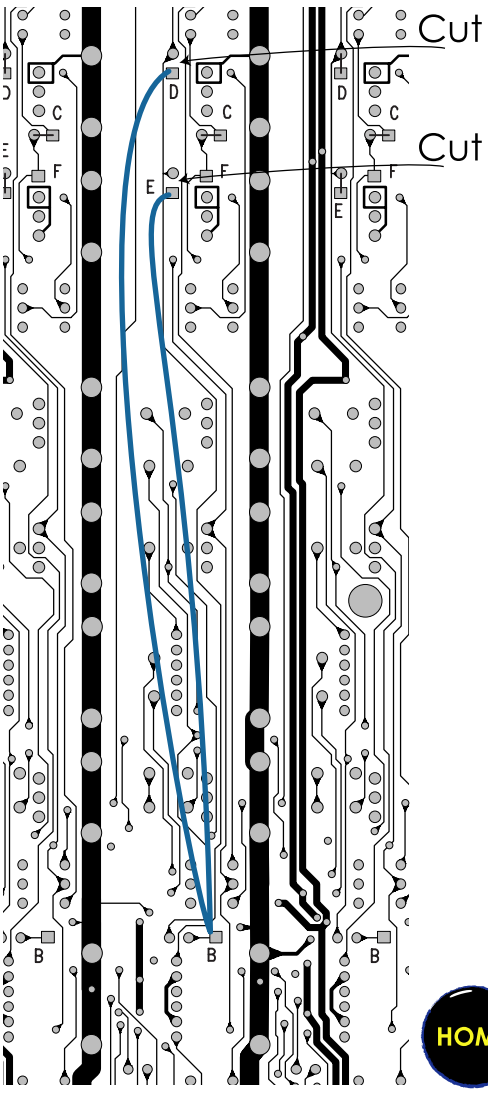
To make Aux 3/5 and Aux4/6
Post-EQ and Pre-Fader

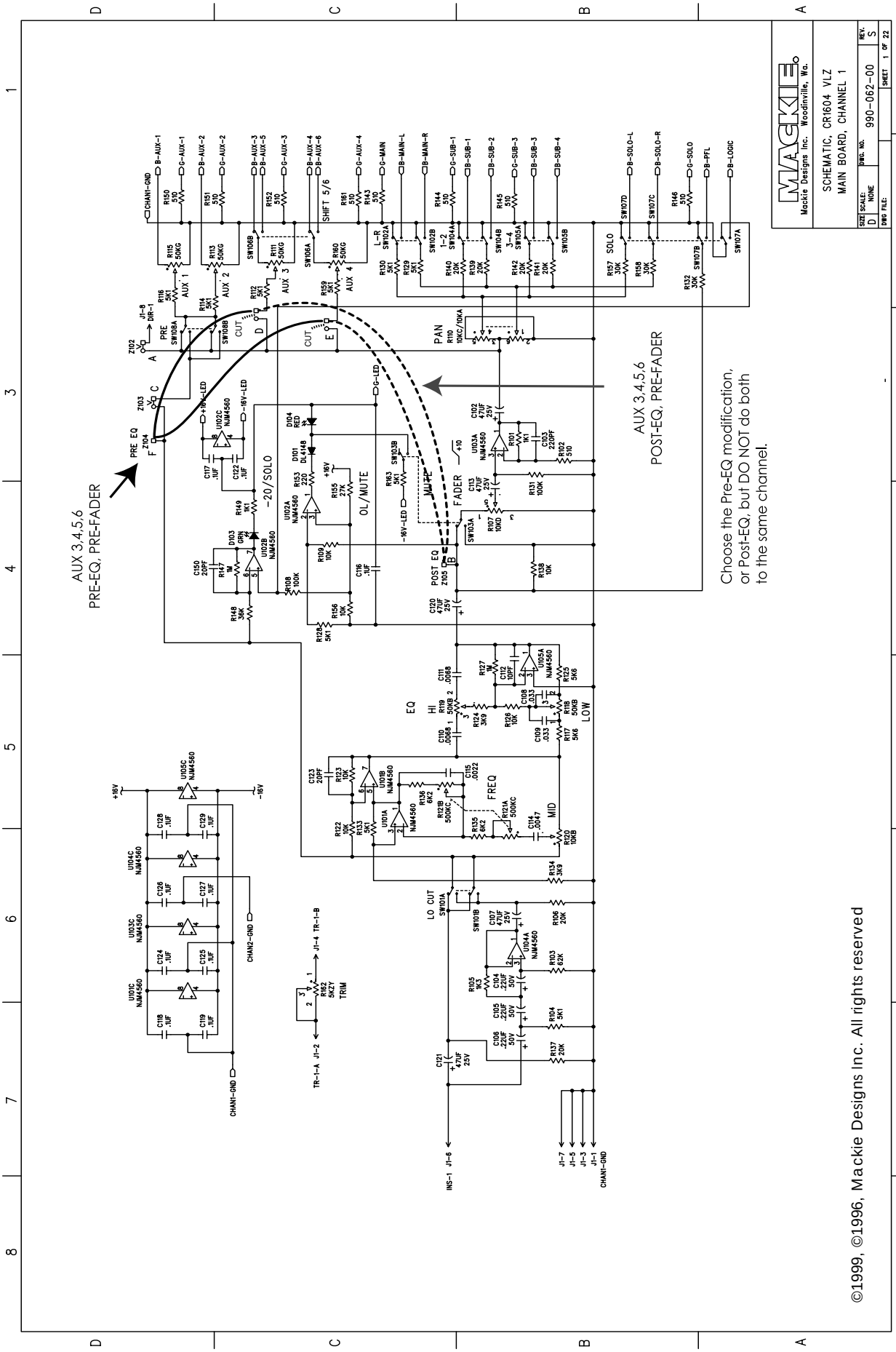
Aux 3/5

1. Cut the trace between the round and square pads at point **D** on the channel to be modified.
2. Solder an insulated jumper wire from the square pad at **D** to the square pad at **B** on the same channel.
3. Repeat for other channels as required.

Aux 4/6

1. Cut the trace between the round and square pads at point **E** on the channel to be modified.
2. Solder an insulated jumper wire from the square pad at **E** to the square pad at **B** on the same channel.
3. Repeat for any other channels as required.




SCHEMATIC, CR1604 VLZ
MAIN BOARD, CHANNEL 1
Mackie Designs Inc. Woodinville, Wa.
DWG. NO. 990-062-00
REV. S
SHEET 1 OF 22
AUX 3,4,5,6
PRE-EQ, PRE-FADER
AUX 3,4,5,6
POST-EQ, PRE-FADER
Choose the Pre-EQ modification,
or Post-EQ, but DO NOT do both
to the same channel.
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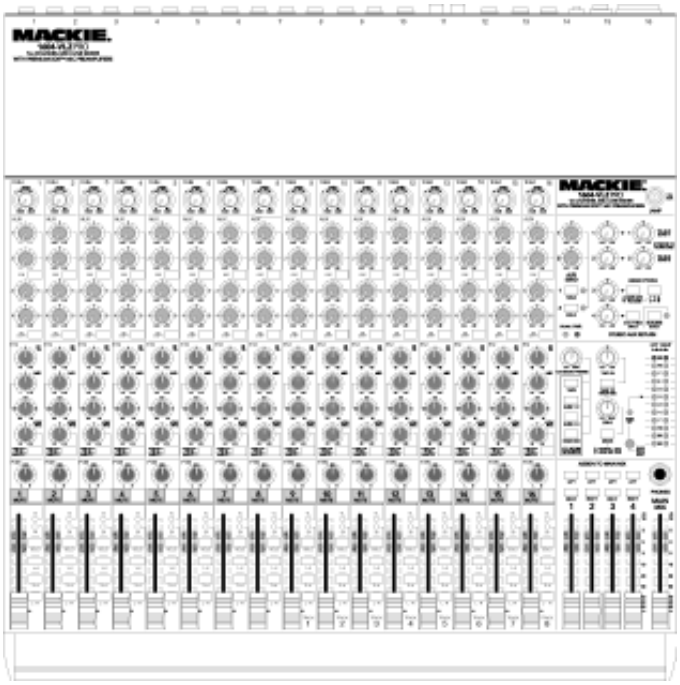
MACKIE®

1604-VLZ PRO

16-CHANNEL MIC/LINE MIXER



SERVICE MANUAL

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820-173-00

Page 3 is interactive

HOME

SERVICE ON THIS EQUIPMENT IS TO BE PERFORMED BY
EXPERIENCED REPAIR TECHNICIANS ONLY
CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE

CAUTION *AVIS*

RISK OF ELECTRIC SHOCK
DO NOT OPEN
RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE THE COVER (OR BACK)
NO USER SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED PERSONNEL

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR EVITER LES RISQUES DE CHOC ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE. AUCUN ENTRETIEN DE PIECES INTERIEURES PAR L'USAGER. CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE.

AVIS:POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, N'EXPOSEZ PAS CET ARTICLE A LA PLUIE OU A L'HUMIDITE.

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UN PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS LAISSER AUCUNE PARTIE A DECOUVERT.

This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION :Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant las limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le réglement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio energy and, if not installed properly and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Le symbole éclair avec point de flèche à l'intérieur d'un triangle équilatéral est utilisé pour alerter l'utilisateur de la présence à l'intérieur du coffret de "voltage dangereux" non isolé d'ampleur suffisante pour constituer un risque d'éléctrocution.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Le point d'exclamation à l'intérieur d'un triangle équilatéral est employé pour alerter les utilisateurs de la présence d'instructions importantes pour le fonctionnement et l'entretien (service) dans le livret d'instruction accompagnant l'appareil.

HOME

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ALL BOARDS

INTRODUCTION

SERVICE ON THIS EQUIPMENT IS TO BE PERFORMED BY
EXPERIENCED REPAIR TECHNICIANS ONLY
CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIE

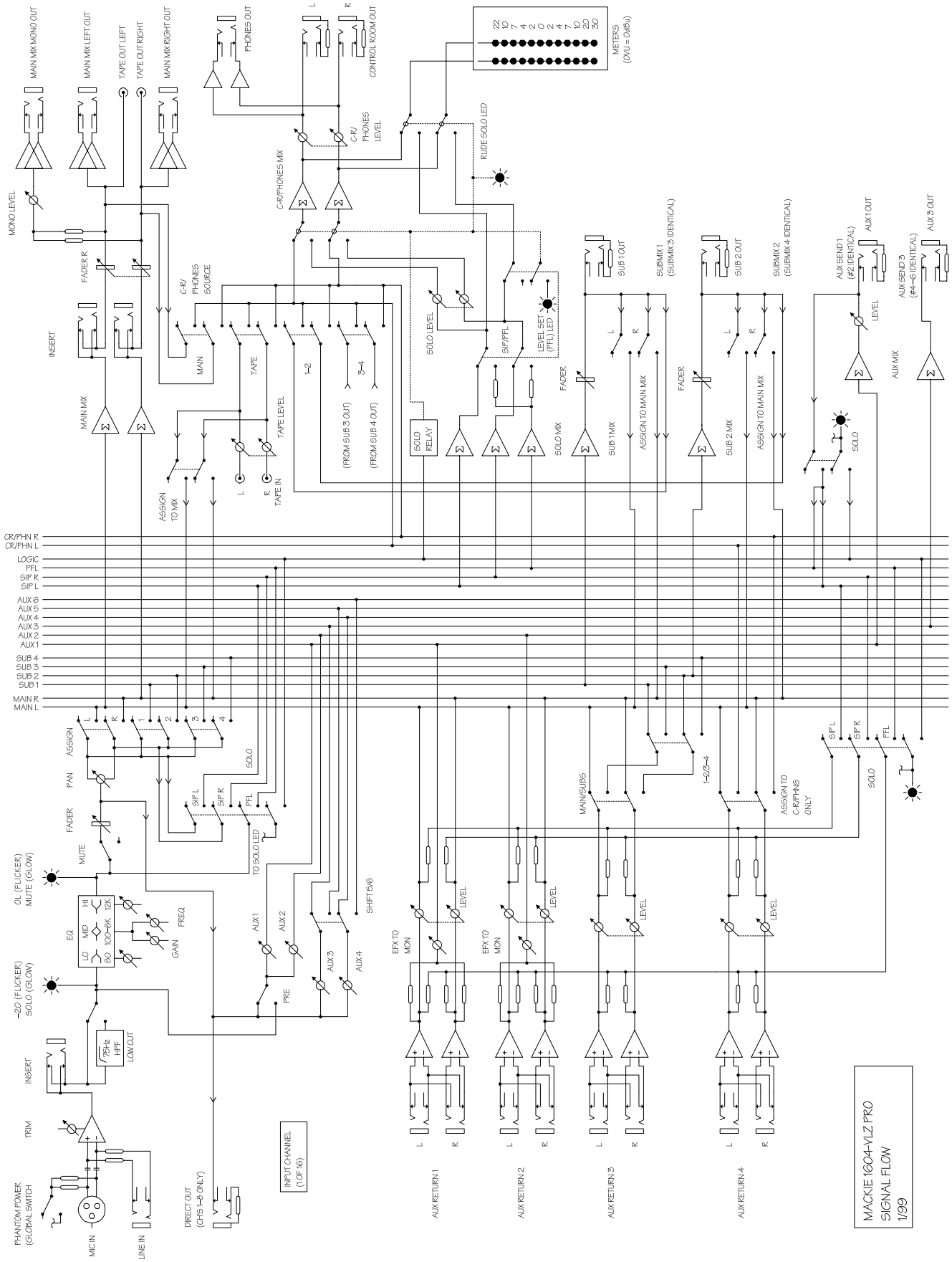
This manual contains basic service information. It is essential that you have a copy of the user's manual as this contains the complete operating instructions.

SERVICE TECHNICAL ASSISTANCE

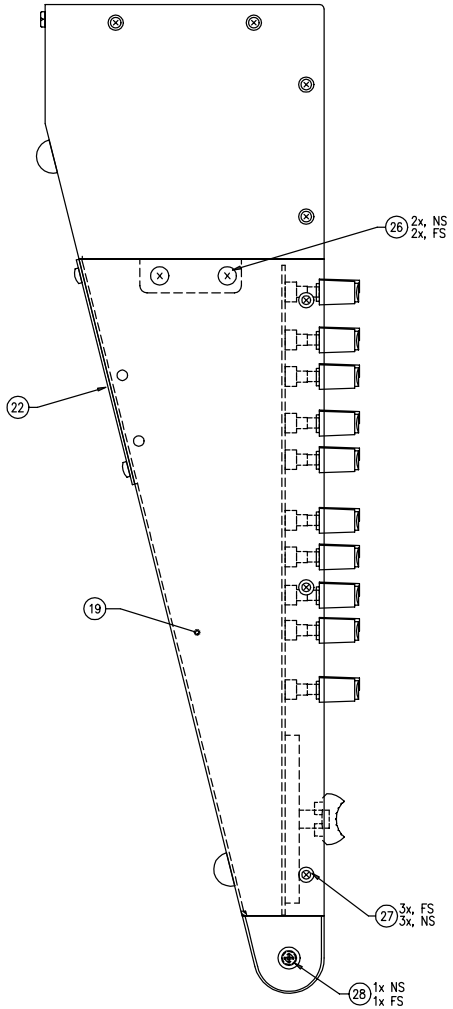
Mackie Designs, Service Technical Assistance, is available 8AM - 5PM PST, Monday through Friday for Authorized Mackie Service Centers, at 1-800-258-6883. Feel free to call with any questions and speak with a carefully-calibrated technician. If one is not available, leave a detailed message and a qualified Mackoid will return your call asap.

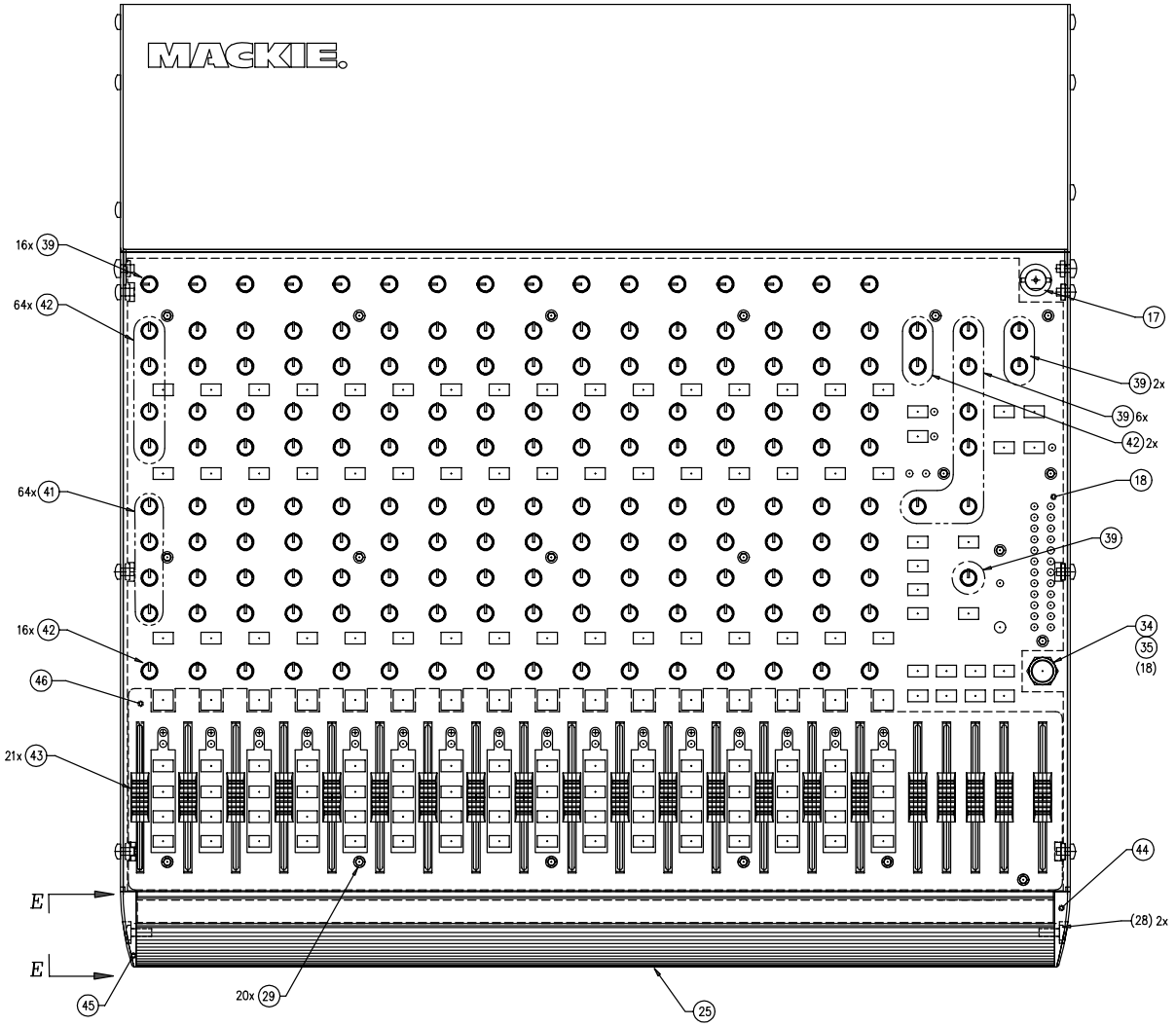
DISCLAIMER

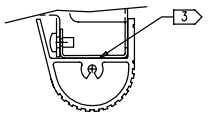
The information contained in this manual is proprietary to Mackie Designs, Inc. The entire manual is protected under copyright and may not be reproduced by any means without express written permission from Mackie Designs, Inc.


MAIN MIX MONO OUT
MAIN MIX LEFT OUT
TAPE OUT LEFT
TAPE OUT RIGHT
MAIN MIX RIGHT OUT
PHONES OUT
CONTROL ROOM OUT
METERS (0VU = 0dBu)
MONO LEVEL
C-R/PHONES MIX
C-R/PHONES LEVEL
RUDE SOLO LED
FADER R
C-R/PHONES SOURCE
INSERT
MAIN
TAPE
1-2
3-4
SOLO LEVEL
SIP/PFL
LEVEL SET (PFL) LED
SUB 1 OUT
SUBMIX 1 (SUBMIX 3 IDENTICAL)
SUB 2 OUT
SUBMIX 2 (SUBMIX 4 IDENTICAL)
AUX SEND 1 (#2 IDENTICAL)
AUX 1 OUT
AUX SEND 3 (#4–6 IDENTICAL)
AUX 3 OUT
MAIN MIX
ASSIGN TO MIX
TAPE LEVEL
(FROM SUB 3 OUT)
(FROM SUB 4 OUT)
SOLO RELAY
SOLO MIX
FADER
SUB 1 MIX
ASSIGN TO MAIN MIX
SUB 2 MIX
LEVEL
AUX MIX
SOLO
CR/PHN R
CR/PHN L
LOGIC
PFL
SIP R
SIP L
AUX 6
AUX 5
AUX 4
AUX 3
AUX 2
AUX 1
SUB 4
SUB 3
SUB 2
SUB 1
MAIN R
MAIN L
ASSIGN
PAN
FADER
MUTE
SOLO
SIP L
SIP R
PFL
TO SOLO LED
OL (FLICKER) MUTE (GLOW)
–20 (FLICKER) SOLO (GLOW)
EQ
HI
MID
LO
12K
10K–BK
80
FREQ
GAIN
AUX 1
AUX 2
AUX 3
AUX 4
PRE
SHIFT 5/6
MAIN/SUB 6
1-2/3-4
ASSIGN TO C-R/PHNS ONLY
EFX TO MON
AUX RETURN 1
AUX RETURN 2
AUX RETURN 3
AUX RETURN 4
INSERT
TRIM
75Hz HPF
LOW CUT
PHANTOM POWER (GLOBAL SWITCH)
MIC IN
LINE IN
DIRECT OUT (CHS 1–8 ONLY)
INPUT CHANNEL (1 OF 16)
MACKIE 1604-VLZ PRO
SIGNAL FLOW
1/99

HOME







VIEW E–E

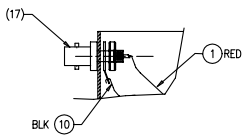
NOT TO SCALE
ENDCAP REMOVED FOR CLARITY

The circled item numbers are shown in the parts list on page 9

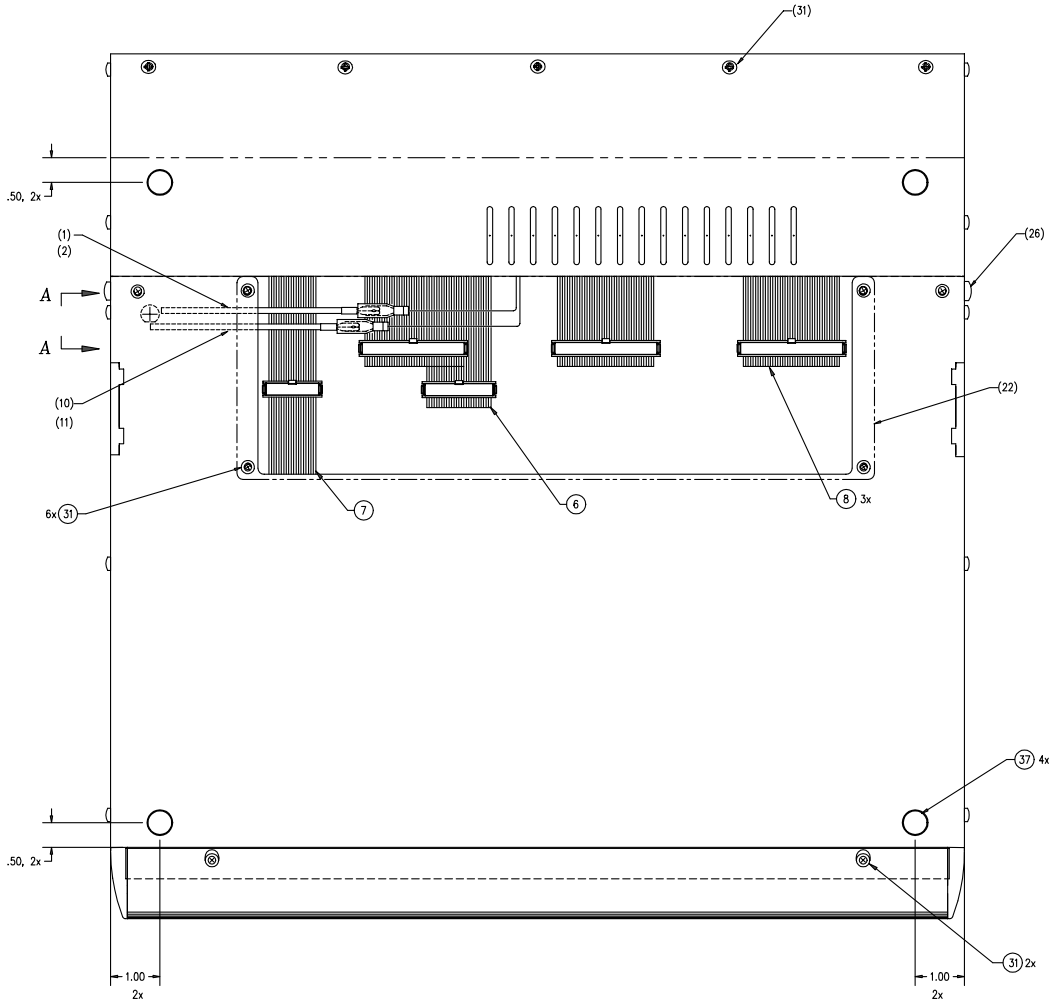
ASSEMBLY GUIDE

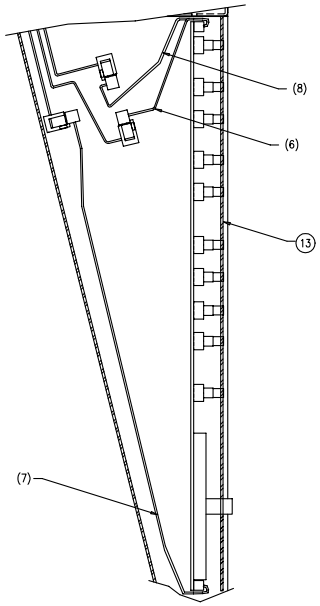
ASSEMBLY GUIDE

The circled item numbers are
shown in the parts list on page 9



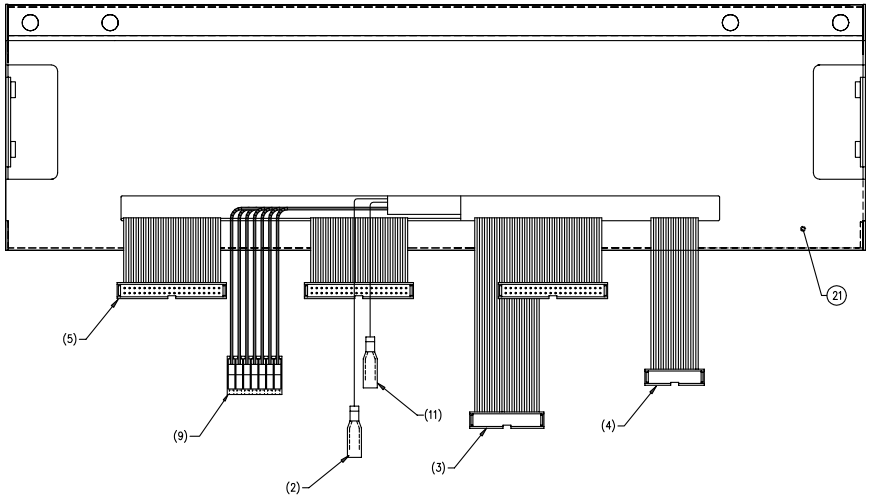
SECTION A–A
NOT TO SCALE

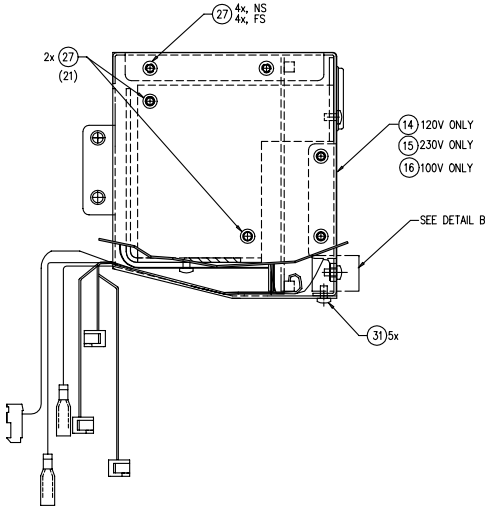


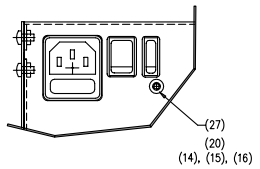


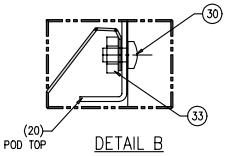
ASSEMBLY GUIDE

The circled item numbers are
shown in the parts list on page 9







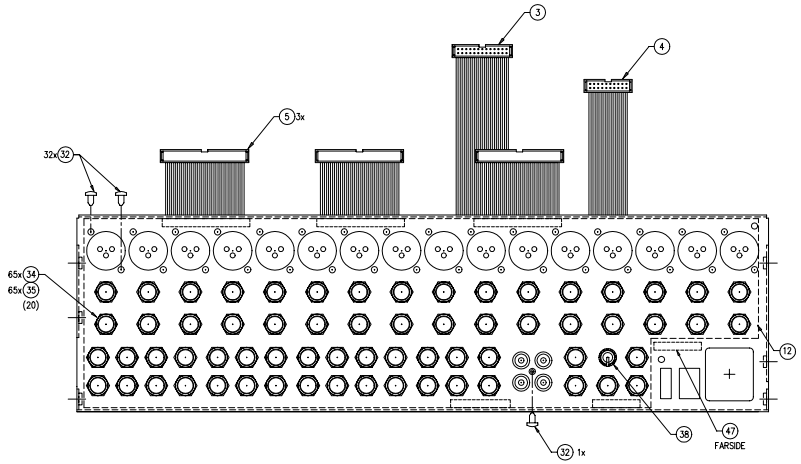


DETAIL B
NOT TO SCALE

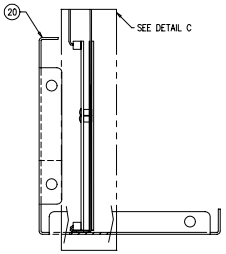
POD SUB-ASSEMBLY

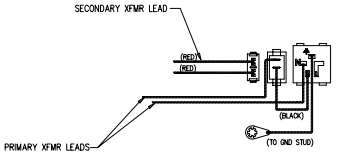
ASSEMBLY GUIDE

The circled item numbers are
shown in the parts list on page 9

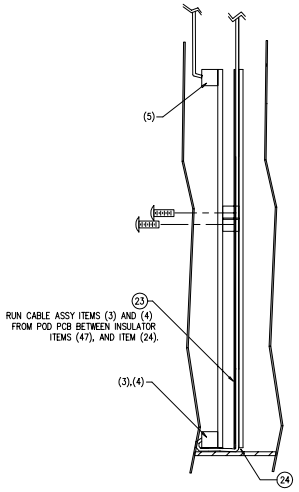


POD TOP SUB-ASSEMBLY

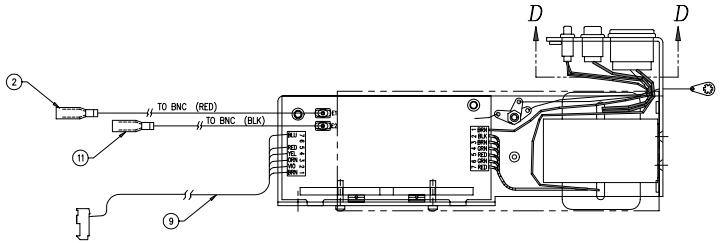




SECTION D-D
NOT TO SCALE



DETAIL C
NOT TO SCALE



POWER SUPPLY SUB-ASSEMBLY
VIEW FOR CLARITY ONLY (ITEMS# 14, 15 & 16)

090-101-00 Master parts

#	PART NO.	DESCRIPTION	REV	QTY	NOTES
	090-101-00	1604VLZ PRO 120V	C3	1	
	090-101-01	1604VLZ PRO 230V	C4	1	
	090-101-02	1604VLZ PRO 100V	C4	1	
	040-060-00	18GA 1007 RED 11.5 BBL PG	A	1	
2	040-070-00	18GA 1007 11.5 QD/BBL PLG	A	1	
3	040-071-00	RIB 26C SHRD PLZ M/F 15"	B	1	
4	040-072-00	RIB 20C SHRD PLZ M/F 13.5"	A	1	
5	040-073-00	RIB 40C SHRD PLZ M/F 11.5"	B	3	
6	040-074-00	RIB 28GA 26C PLZD F/F 6'	A	1	
7	040-075-00	RIB 28GA 20C PLZ F/F 13.5"	A	1	
8	040-076-00	RIB 28GA 40C PLZD F/F 2.5"	B	3	
9	040-078-00	DIS 18G 1007 7C .156 16.5"	B	1	
10	040-088-00	DIS 18G 1007 11.5" M BBL	A1	1	
11	040-089-00	DIS 18G 1007 11.5" QD/FBBL	A	1	
12	055-219-00-01	PCB ASSY POD 1604VLZ PRO	A	1	(all PCB parts are shown on next pages)
13	055-220-00-01	PCB ASSY MAIN 1604VLZ PRO	A	1	
14	080-120-00	SA POWER SPLY 1604VLZ PRO	A1	1	
15	080-120-01	SA PS 230V 1604VLZ PRO	A1	1	
16	080-120-02	SA PS 100V 1604VLZ PRO	A1	1	
17	400-010-00	BNC PANEL MOUNT	B	1	
18	550-172-10	SCN CHAS TOP 1604VLZ PRO	D	1	
19	550-173-00	CHASSIS BOTTOM - 1604VLZ	A	1	
20	550-174-10	POD TOP - 1604VLZ PRO	E	1	
21	550-175-00	POD BOTTOM - 1604VLZ	A	1	
22	550-176-00	BTM CABLE PLATE - 1604VLZ	A	1	
	550-177-00	RACK EAR - 1604VLZ	A	2	
24	550-209-00	INSULATOR MTL-1604VLZ POD	C1	1	
25	551-021-00	EXTR PNT ARMREST-1604VLZ	A	1	
	640-001-00	LC IEC SJT 10A/125V 6FT	D	1	
26	700-004-00	SEMS 8-32X1/4 PHP BLKZC		4	
27	700-006-00	MCH 6-32X1/4 PHP BLKZC	A	16	
28	700-010-06	TF 6-32X1/2 PHP BLKZC	A	2	
29	700-011-00	MCH 4-40X1/4 BTNSKT BLKOX	A	21	
30	700-031-01	MCH 6-32X1/4 BTNPIN BLKZC	A	1	
31	701-002-00	SM B 6X1/4 PHP BLKZC	A	14	
32	701-016-00	5-20X5/16 PHPII TYP B BLK	A	33	
33	705-001-00	KEPNUT 6-32	A	1	
34	705-003-00	NUT (SPLD W/JACK)	A	AR	
35	710-002-00	WASHER (SPLD WITH JACK)	A	AR	
36	730-032-00	ADHESIVE 2 PART EPOXY 460	A	AR	
37	750-001-00	BUMPON ROUND BLK .63X.31	A	4	
38	760-007-00	BTN 10MM SMALL BLK		1	
39	760-048-01	KNOB 9MM LT GRY	B	25	
41	760-048-03	KNOB 9MM BLU/GRY	B	64	
42	760-048-04	KNOB 9MM DARK GRAY	B	82	
43	760-058-01	KNOB SLDR 22X8.26 MOLD LN	A	21	
44	760-059-10	ENDCAP RIGHT 1604-VLZ	B	1	
45	760-059-20	ENDCAP LEFT 1604-VLZ	B	1	
46	780-022-00	LIPSEAL - 1604VLZ	B	1	
	780-032-00	INSULATOR MYLAR-1604VLZ	C	1	
	790-002-00	BAG POLY 12 X 18 2MIL	A	1	
	790-011-00	BAG POLY 20 X 7 X 30 4MIL	A	1	
	800-118-00	BOX 1604VLZ PRO		1	
	800-122-00	SLEEVE 1604VLZ PRO		1	
	810-043-00	FOAM END LT MOLD 1604 VLZ		1	
	810-043-01	FOAM END RT MOLD 1604 VLZ		1	

See page 19 for more p/s details

NOTE: Use the correct voltage transformer and the correct fuse.

Parts Numbering guide

040- Cables
055- Finished PCB Assy
100- Pots and resistors
200- Capacitors
300- Semiconductors
400- Jacks/Connectors
500- Switches
510- Fuses
550- Chassis Metalwork
600- Transformers
601- Inductors
610- Wires and Cables
640- AC line cords
700- Hardware
760- Knobs/Plastic
770- Fans
790- Misc./Packing
800- Printed Material
860- EPROM

HOME

055-219-00 REV B, Pod Board

PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
110-013-00	RESISTOR CF	33	5%	R71-72
115-081-00	RES .25W 1%	6.81	1%	R525-556
115-373-00	RESISTOR CF	6K81	1%	R493-524
130-003-02	POTRTY 50KG 9MM MN TN PAN	50KG		R557
140-051-00	RESISTOR CF	120	5%	R1-4 R6 R9 R12 R15 R19 R23 R45-47 R54-56 R59-62
140-065-00	RESISTOR CF	470	5%	R269-284 R293 R296-297 R300-301 R304-305 R308-309 R312-313 R316-317 R320-321 R324
140-074-00	RESISTOR CF	1K1	5%	R64 R67
140-080-00	RES TF SM .1W 5% 2K0 OHM	2K	5%	R111
140-090-00	RESISTOR CF	5K1	5%	R24 R27
140-097-00	RESISTOR CF	10K	5%	R8 R11 R14 R17 R22 R25 R31 R37-38 R42-43 R48-51 R53 R58 R91-92 R104-105 R116 R127 R130 R132 R135 R138 R141 R144 R147 R150 R152 R155 R158 R161 R164 R167 R170 R558 R567
140-104-00	RESISTOR CF	20K	5%	R429 R435-436 R442-443 R449-450 R456-457 R463-464 R470-471 R477-478 R484
141-051-00	RESISTOR TF SMT	120	5%	R5 R7 R10 R13 R16 R18 R20-21 R26 R28 R30 R32-36 R39-41 R44 R52 R57 R66 R70 R73 R77-78 R81-82 R88-90 R126 R131 R134 R137 R140 R143 R146 R149 R154 R157 R160 R163 R166 R169 R171-172
145-000-00	RES TF SM . 1W 0 OHM	0	5%	R222 R224 R226 R228 R230 R232 R234 R236 R238 R242 R246 R250 R254 R258 R262 R266
145-306-00	RES MF SM . 1W 1% 1K50 OHM	1K50	1%	R125 R128-129 R133 R136 R139 R142 R145 R148 R151 R153 R156 R159 R162 R165 R168 R174 R176 R178-179 R181-182 R184-185 R187-188 R190-191 R193-194 R196-197
145-331-00	RES MF SM . 1W 1% 2K49 OHM	2K49	1%	R221 R223 R225 R227 R229 R231 R233 R235 R239 R243 R247 R251 R255 R259 R263 R267 R253 R245 R257 R241 R261 R249 R265 R237 R325 R329-331 R335-337 R341-343 R347-349 R353-355 R359-361 R365-367 R371-375 R377-382 R384-389 R391-396 R398-403 R405-410 R412-417 R419-424 R426-428 R430 R434 R437 R441 R444 R448 R451 R455 R458 R462 R465 R469 R472 R476 R479 R483
145-335-00	RES MF SM . 1W 1% 2K74 OHM	2K74	1%	R65
145-361-00	RES MF SM . 1W 1% 5K11 OHM	5K11	1%	R29 R63 R79-80 R106-108 R112-113 R115 R240 R244 R248 R252 R256 R260 R264 R268 R285-292 R294-295 R298-299 R302-303 R306-307 R310-311 R314-315 R318-319 R322-323 R327-328 R333-334 R339-340 R345-346 R351-352 R357-358 R363-364 R369-370 R432-433 R439-440 R446-447 R453-454 R460-461 R467-468 R474-475 R481-482 R559-566
145-365-00	RES MF SM .1W 1% 5K62 OHM	5K62	1%	R173 R175 R177 R180 R183 R186 R189 R192 R195 R198-220

HOME

055-219-00 REV B continued

PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
145-389-00	RES MF SM .1W 1% 10K0 OHM	10K0	1%	R68-69 R74-76 R83-87 R93-103 R109-110 R114 R117-124 R326 R332 R338 R344 R350 R356 R362 R368 R376 R383 R390 R397 R404 R411 R418 R425 R431 R438 R445 R452 R459 R466 R473 R480 R485-492
212-001-00	CER .01UF 10% 50V X7R SM	0.01	10%	C383-414
212-004-00	CER 220PF 5% 50V NPO SM	220PF	5%	C40-41 C53 C318 C320 C322 C326 C328 C330 C332 C351-366
212-005-00	CAPACITOR CERAMIC SMT	20PF	5%	C7 C12 C18 C24 C48 C54-60
212-006-00	CER 470PF 5% 50V NPO SM	470PF	5%	C9 C25 C367-382
212-009-00	CAPACITOR CERAMIC SMT	47PF	5%	C3-6 C13-16 C27-30 C33-36
212-010-00	CAPACITOR CERAMIC SMT	0.1	5%	C143-150 C217 C220 C223 C226 C229 C232 C235 C238-254 C415-430 C11 C17 C37-39 C42 C46-47 C62 C64 C183-190 C192 C194 C196 C198 C200 C202 C204 C206
212-018-00	CAPACITOR CERAMIC SMT	10PF	5%	C151-182
212-019-00	CER 150PF 5% 50V SM	150PF	5%	C191 C193 C195 C197 C199 C201 C203 C205 C207-216 C218-219 C221-222 C224-225 C227-228 C230-231 C233-234 C236-237
212-034-00	CAPACITOR CERAMIC SMT, X7R	0.022	10%	C257 C261 C265 C269 C273 C277 C281 C285 C289 C293 C297 C301 C305 C309 C313 C317
212-036-00	CER 470PF 2% 50V NPO SMT	470PF	2%	C61 C65-79 C95-110
212-037-00	CER 1000PF 2% 5OV NPO SMT	1000PF	2%	C255-256 C259-260 C263-264 C267-268 C271-272 C275-276 C279-280 C283-284 C287-288 C291-292 C295-296 C299-300 C303-304 C307-308 C311-312 C315-316
220-002-02	CAPACITOR LYTIC RADIAL TAPE	47UF	10%	C1-2 C8 C10 C19-21 C26 C31-32 C43-45 C49-52 C63 C80-94 C111-142 C324 C334
220-003-02	CAPACITOR LYTIC RADIAL TAPE	47UF	10%	C258 C262 C266 C270 C274 C278 C282 C286 C290 C294 C298 C302 C306 C310 C314 C319 C321 C323 C325 C327 C329 C331 C333 C335 C337 C339 C341 C343 C345 C347 C349-350
220-019-02	CAPACITOR LYTIC RADIAL KS TAPE	47UF	10%	C22-23
300-003-00	DIODE SIGNAL SMD	DL4148		D65-80
301-004-00	DIODE POWER SMD	DL4002		D1-64
310-003-02	TRANSISTOR PNP, T&R	2SA1084		Q1-32
311-002-00	X-SISTOR PNP SMD	IMBT4403		Q33-80
320-006-00	I.C. LINEAR SMD	NJM 2068		U10-33
320-011-00	I.C. LINEAR	NJM 4560		U1-2
320-012-00	I.C. LINEAR SMD	NJM4560M		U3-9
400-005-00	CONNECTOR STR 40P .100 X 2			P1-3
400-022-00	CONNECTOR JACK QUAD RCA HORIZ			J19
400-031-00	CONNECTOR STR 20P .100 X 2			P5
400-043-00	CONNECTOR STR 26P .100 X 2			P4
400-214-00	CONNECTOR JACK 1/4" VERT PC MOUNT W/1MM LW			J1-18 J20-35 J37-68
400-223-00	CONNECTOR XLR PC MTG VERT FML			J69-84
450-219-00	PCB, 1604-VLZ POD			Z1
601-004-00	FERRITE BEAD SMB	MLB40-5		L1-32
601-007-00	CHOKE, COMMON MODE	50mH		L33-48
620-023-00	"3.5"" RIBBON"	.100 X 4		J36

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055-220-00 REVA, Main board

PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
130-002-02	RESISTOR POT 9MM HORIZ	50KB		R118-119 R218-219 R318-319 R418-419 R518-519 R618-619 R718-719 R818-819 R918-919 R1018-1019 R1118-1119 R1218-1219 R1318-1319 R1418-1419 R1518-1519 R1618-1619
130-003-02	RESISTOR POT 9MM HORIZ	50KG		R1704 R1716 R1790 R1808 R111 R113 R115 R160 R211 R213 R215 R260 R311 R313 R315 R360 R411 R413 R415 R460 R511 R513 R515 R560 R611 R613 R615 R660 R711 R713 R715 R760 R811 R813 R815 R860 R911 R913 R915 R960 R1011 R1013 R1015 R1060 R1111 R1113 R1115 R1160 R1211 R1213 R1215 R1260 R1311 R1313 R1315 R1360 R1411 R1413 R1415 R1460 R1511 R1513 R1515 R1560 R1611 R1613 R1615 R1660
130-022-02	RESISTOR POT 9MM HORIZ	10KB		R120 R220 R320 R420 R520 R620 R720 R820 R920 R1020 R1120 R1220 R1320 R1420 R1520 R1620
130-031-00	RES POT 60MM SLIDE MONO10KD			R107 R207 R307 R407 R507 R607 R707 R807 R907 R1007 R1107 R1207 R1307 R1407 R1507 R1607 R1895 R1908 R1919 R1988
130-032-00	RESISTOR POT 60MM SLIDE DUAL	50KD		R1921
130-061-02	POT 50KG 12MM DUAL WO SLV	50KG		R1778 R1796 R1814 R1834 R1865 R1869 R1938
130-064-02	POT 500KC 12MM DUL WO SLV	500KC		R121 R221 R321 R421 R521 R621 R721 R821 R921 R1021 R1121 R1221 R1321 R1421 R1521R1621
130-065-02	POT 10KCA 12MM DL WO SLV10KC/10KA			R110 R210 R310 R410 R510 R610 R710 R810 R910 R1010 R1110 R1210 R1310 R1410 R1510 R1610
130-074-02	RESISTOR POT 9MM HORIZ	10KZY		R162 R262 R362 R462 R562 R662 R762 R862 R962 R1062 R1162 R1262 R1362 R1462 R1562 R1662
140-032-00	RESISTOR CF	20	5%	R1767 R1891
140-037-00	RESISTOR CF	33	5%	R1766
140-051-00	RESISTOR CF	120	5%	R1765 R1776
140-057-00	RESISTOR CF	220	5%	R153 R253 R353 R453 R553 R653 R753 R853 R953 R1053 R1153 R1253 R1353 R1453 R1553 R1653 R1762-1763
140-061-00	RESISTOR CF	330	5%	R1756 R1758
140-065-00	RESISTOR CF	470	5%	R1755 R1757 R1759

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055-220-00 REV A continued

PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
140-066-00	RES TF SM .1W 5% 510 OHM	510	5%	R17 R1874 R143-146 R150-152 R161 R202 R243-246 R250-252 R261 R302 R343-346 R350-352 R361 R402 R443-446 R450-452 R461 R502 R543-546 R550-552 R561 R602 R643-646 R650-652 R661 R702 R743-746 R750-752 R761 R802 R843-846 R850-852 R861 R902 R943-946 R950-952 R961 R1002 R1043-1046 R1050-1052 R1061 R1102 R1143-1146 R1150-1152 R1161 R1202 R1243-1246 R1250-1252 R1261 R1302 R1343-1346 R1350-1352 R1361 R1402 R1443-1446 R1450-1452 R1461 R1502 R1543-1546 R1550-1552 R1561 R1602 R1643-1646 R1650-1652 R1661 R1703 R1707 R1715 R1728 R1731 R1754 R1760-1761 R1788-1789 R1806-1807 R1822-1823 R1830 R1842-1843 R1850 R102 R1883 R1896 R1898 R1905-1906 R1910 R1917 R1920 R1923 R1926-1927 R1931 R1934 R1948-1949 R1952 R1972 R1976 R1983-1984 R1990 R1997-1998
140-068-00	RESISTOR CF	620	5%	R1753
140-074-00	RESISTOR CF	1K1	5%	R101 R149 R201 R249 R301 R349 R401 R449 R501 R549 R601 R649 R701 R749 R801 R849 R901 R949 R1001 R1049 R1101 R1149 R1201 R1249 R1301 R1349 R1401 R1449 R1501 R1549 R1601 R1649
140-076-00	RESISTOR CF	1K3	5%	R105 R205 R305 R405 R505 R605 R705 R805 R905 R1005 R1105 R1205 R1305 R1405 R1505 R1605 R1752 R1899 R1911 R1924 R1932 R1977 R1991
140-080-00	RESISTOR CF	2K	5%	R1751 R1779 R1783 R1797 R1801 R1815 R1819 R1835 R1839 R1888-1889 R1939 R1942
140-083-00	RESISTOR CF	2K7	5%	R1901 R1903 R1913 R1915 R1928 R1935 R1963 R1966 R1968 R1970 R1973 R1979 R1981 R1985 R1993 R1995 R1999
140-086-00	RESISTOR CF	3K6	5%	R1710 R1719 R1832 R1893
140-087-00	RESISTOR CF	3K9	5%	R124 R134 R224 R234 R324 R334 R424 R434 R524 R534 R624 R634 R724 R734 R824 R834 R924 R934 R1024 R1034 R1124 R1134 R1224 R1234 R1324 R1334 R1424 R1434 R1524 R1534 R1624 R1634 R1750
140-090-00	RESISTOR CF	5K1	5%	R104 R112 R114 R116 R128-130 R133 R159 R163 R204 R212 R214 R216 R228-230 R233 R259 R263 R304 R312 R314 R316 R328-330 R333 R359 R363 R404 R412 R414 R416 R428-430 R433 R459 R463 R504 R512 R514 R516 R528-530 R533 R559 R563 R604 R612 R614 R616 R628-630 R633 R659 R663 R704 R712 R714 R716 R728-730 R733 R759 R763 R804 R812 R814 R816 R828-830 R833 R859 R863 R904 R912 R914 R916 R928-930 R933 R959 R963 R1004 R1012 R1014 R1016 R1028-1030 R1033 R1059 R1063 R1104 R1112 R1114 R1116 R1128-1130 R1133

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PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
				R1159 R1163 R1204 R1212 R1214 R1216 R1228-1230 R1233 R1259 R1263 R1304 R1312 R1314 R1316 R1328-1330 R1333 R1359 R1363 R1404 R1412 R1414 R1416 R1428-1430 R1433 R1459 R1463 R1504 R1512 R1514 R1516 R1528-1530 R1533 R1559 R1563 R1604 R1612 R1614 R1616 R1628-1630 R1633 R1659 R1663 R1781 R1785 R1799 R1803 R1817 R1828 R1837 R1848 R1859 R1879-1880 R1902 R1904 R1914 R1916 R1946-1947 R1953-1960 R1967 R1969 R1971 R1974 R1980 R1982 R1986 R1994 R1996 R2000
140-091-00	RESISTOR CF	5K6	5%	R117 R125 R217 R225 R317 R325 R417 R425 R517 R525 R617 R625 R717 R725 R817 R825 R917 R925 R1017 R1025 R1117 R1125 R1217 R1225 R1317 R1325 R1417 R1425 R1517 R1525 R1617 R1625
140-092-00	RESISTOR CF	6K2	5%	R135-136 R235-236 R335-336 R435-436 R535-536 R635-636 R735-736 R835-836 R935-936 R1035-1036 R1135-1136 R1235-1236 R1335-1336 R1435-1436 R1535-1536 R1635-1636
140-094-00	RESISTOR CF	7K5	5%	R1748-1749 R1769
140-097-00	RESISTOR CF	10K	5%	R109 R122-123 R126 R138 R156 R209 R222-223 R226 R238 R256 R309 R322-323 R326 R338 R356 R409 R422-423 R426 R438 R456 R509 R522-523 R526 R538 R556 R609 R622-623 R626 R638 R656 R709 R722-723 R726 R738 R756 R809 R822-823 R826 R838 R856 R909 R922-923 R926 R938 R956 R1009 R1022-1023 R1026 R1038 R1056 R1109 R1122-1123 R1126 R1138 R1156 R1209 R1222-1223 R1226 R1238 R1256 R1309 R1322-1323 R1326 R1338 R1356 R1409 R1422-1423 R1426 R1438 R1456 R1509 R1522-1523 R1526 R1538 R1556 R1609 R1622-1623 R1626 R1638 R1656 R1702 R1714 R1764 R1768 R1775 R1791-1792 R1809-1810 R1866 R1870 R1884-1885 R1894 R1907 R1918 R1929 R1936 R1987
140-101-00	RESISTOR CF	15K	5%	R2050-2051
140-104-00	RESISTOR CF	20K	5%	R106 R137 R139-142 R206 R237 R239-242 R306 R337 R339-342 R406 R437 R439-442 R506 R537 R539-542 R606 R637 R639-642 R706 R737 R739-742 R806 R837 R839-842 R906 R937 R939-942 R1006 R1037 R1039-1042 R1106 R1137 R1139-1142 R1206 R1237 R1239-1242 R1306 R1337 R1339-1342 R1406 R1437 R1439-1442 R1506 R1537 R1539-1542 R1606 R1637 R1639-1642 R1721 R1846 R1849 R1890 R1950 R1961
140-108-00	RESISTOR CF	27K	5%	R155 R255 R355 R455 R555 R655 R755 R855 R955 R1055 R1155 R1255 R1355 R1455 R1555 R1655

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055-220-00 REV A continued

PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
140-109-00	RESISTOR CF	30K	5%	R132 R157-158 R232 R257-258 R332 R357-358 R432 R457-458 R532 R557-558 R632 R657-658 R732 R757-758 R832 R857-858 R932 R957-958 R1032 R1057-1058 R1132 R1157-1158 R1232 R1257-1258 R1332 R1357-1358 R1432 R1457-1458 R1532 R1557-1558 R1632 R1657-1658 R1709 R1718 R1724-1725 R1777 R1782 R1786-1787 R1795 R1800 R1804-1805 R1813 R1818 R1821 R1827 R1833 R1838 R1841 R1847 R1875-1877 R1937 R1941
140-111-00	RESISTOR CF	36K	5%	R148 R248 R348 R448 R548 R648 R748 R848 R948 R1048 R1148 R1248 R1348 R1448 R1548 R1648 R1701 R1706 R1713 R1717 R1726-1727 R1729-1730 R1780 R1784 R1798 R1802 R1816 R1820 R1826 R1829 R1836 R1840 R1862-1864 R1868 R1900 R1912 R1925 R1933 R1940 R1943-1945 R1978 R1992
140-112-00	RESISTOR CF	39K	5%	R2052-2053
140-117-00	RESISTOR CF	62K	5%	R103 R203 R303 R403 R503 R603 R703 R803 R903 R1003 R1103 R1203 R1303 R1403 R1503 R1603 R1705 R1720 R1793-1794 R1811-1812 R1824-1825 R1844-1845 R1867 R1871
140-123-00	RESISTOR CF	100K	5%	R108 R131 R208 R231 R308 R331 R408 R431 R508 R531 R608 R631 R708 R731 R808 R831 R908 R931 R1008 R1031 R1108 R1131 R1208 R1231 R1308 R1331 R1408 R1431 R1508 R1531 R1608 R1631 R1722 R1746-1747 R1872-1873 R1881-1882 R1886 R1897 R1909 R1951 R1962 R1964 R1975 R1989
140-130-00	RESISTOR CF	200K	5%	R1887 R1922 R1930
140-147-00	RESISTOR CF	1M	5%	R127 R147 R227 R247 R327 R347 R427 R447 R527 R547 R627 R647 R727 R747 R827 R847 R927 R947 R1027 R1047 R1127 R1147 R1227 R1247 R1327 R1347 R1427 R1447 R1527 R1547 R1627 R1647 R1965
145-051-00	RESISTOR MF SMT	3R32	1%	R1-16
200-003-02	CAPACITOR MYLAR T&R	0.033	10%	C108-109 C208-209 C308-309 C408-409 C508-509 C608-609 C708-709 C808-809 C908-909 C1008-1009 C1108-1109 C1208-1209 C1308-1309 C1408-1409 C1508-1509 C1608-1609
200-005-02	CAPACITOR MYLAR T&R	0.0068		C110-111 C210-211 C310-311 C410-411 C510-511 C610-611 C710-711 C810-811 C910-911 C1010-1011 C1110-1111 C1210-1211 C1310-1311 C1410-1411 C1510-1511 C1610-1611
200-011-02	CAPACITOR MYLAR T&R	0.0022		C115 C215 C315 C415 C515 C615 C715 C815 C915 C1015 C1115 C1215 C1315 C1415 C1515 C1615
200-015-02	CAPACITOR MYLAR T&R	0.0047		C114 C214 C314 C414 C514 C614 C714 C814 C914 C1014 C1114 C1214 C1314 C1414 C1514 C1614

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PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
212-001-00	CAPACITOR CERAMIC SMT	0.01	10%	C1755 C1857-1858
212-004-00	CAPACITOR CERAMIC SMT	220PF	5%	C103 C203 C303 C403 C503 C603 C703 C803 C903 C1003 C1103 C1203 C1303 C1403 C1503 C1603 C1808 C1813 C1818 C1820 C1823 C1825 C1844 C1850
212-005-00	CAPACITOR CERAMIC SMT	20PF	5%	C123 C150 C223 C250 C323 C350 C423 C450 C523 C550 C623 C650 C723 C750 C823 C850 C923 C950 C1023 C1050 C1123 C1150 C1223 C1250 C1323 C1350 C1423 C1450 C1523 C1550 C1623 C1650 C1701 C1703 C1707 C1709 C1714 C1716 C1720 C1722 C1762 C1765 C1768 C1771 C1774 C1777 C1780 C1783 C1789 C1791 C1797 C1799 C1801 C1828 C1831
212-009-00	CAPACITOR CERAMIC SMT	47PF	5%	C1713 C1725 C1805 C1810 C1815 C1835 C1837 C1839-1841 C1843 C1846-1847 C1852
212-010-00	CAPACITOR CERAMIC SMT	.1UF	-400	C17-30 C116-119 C122 C124-129 C216-219 C222 C316-319 C322 C324-329 C416-419 C422 C516-519 C522 C524-529 C616-619 C622 C716-719 C722 C724-729 C816-819 C822 C916-919 C922 C924-929 C1016-1019 C1022 C1116-1119 C1122 C1124-1129 C1216-1219 C1222 C1316-1319 C1322 C1324-1329 C1416-1419 C1422 C1516-1519 C1522 C1524-1529 C1616-1619 C1622 C1705-1706 C1718-1719 C1726-1741 C1760 C1803 C1853-1856
212-018-00	CAPACITOR CERAMIC SMT	10PF	5%	C112 C212 C312 C412 C512 C612 C712 C812 C912 C1012 C1112 C1212 C1312 C1412 C1512 C1612 C1793 C1795
220-002-02	CAPACITOR LYTIC RADIAL TAPE	47UF	10%	C102 C107 C113 C120-121 C202 C207 C213 C220-221 C302 C307 C313 C320-321 C402 C407 C413 C420-421 C502 C507 C513 C520-521 C602 C607 C613 C620-621 C702 C707 C713 C720-721 C802 C807 C813 C820-821 C902 C907 C913 C920-921 C1002 C1007 C1013 C1020-1021 C1102 C1107 C1113 C1120-1121 C1202 C1207 C1213 C1220-1221 C1302 C1307 C1313 C1320-1321 C1402 C1407 C1413 C1420-1421 C1502 C1507 C1513 C1520-1521 C1602 C1607 C1613 C1620-1621 C1702 C1704 C1708 C1710 C1715 C1717 C1753-1754 C1761 C1763-1764 C1766-1767 C1769-1770 C1772-1773 C1775-1776 C1778-1779 C1781-1782 C1784 C1790 C1792 C1794 C1796 C1798 C1800 C1802 C1806-1807 C1809 C1811-1812 C1814 C1816-1817 C1819 C1821-1822 C1824 C1826-1827 C1829-1830 C1832-1834 C1842 C1845 C1848-1849 C1851

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055-220-00 REV A continued

PART NO.	DESCRIPTION	VALUE	REFERENCE DESIGNATORS
220-013-02	CAPACITOR LYTIC RADIAL TAPE	.22UF 10%	C104-106 C204-206 C304-306 C404-406 C504-506 C604-606 C704-706 C804-806 C904-906 C1004-1006 C1104-1106 C1204-1206 C1304-1306 C1404-1406 C1504-1506 C1604-1606
220-014-00	CAPACITOR LYTIC RADIAL KS	2.2UF 10%	C1804
220-030-00	CAPACITOR LYTIC RADIAL	1000UF 10%	C1-16
300-003-00	DIODE SIGNAL SMD	DL4148	D101 D201 D301 D401 D501 D601 D701 D801 D901 D1001 D1101 D1201 D1301 D1401 D1501 D1601 D1720-1725 D1763
302-002-03	DIODE ZENER SMD	DL5230B	D1752
304-018-00	DIODE LED T1-3/4 w/flasher	GREEN	D1753
304-027-02	LED RED W/.425 SPACER TR	RED	D104 D204 D304 D404 D504 D604 D704 D804 D904 D1004 D1104 D1204 D1304 D1404 D1504 D1604 D1726-1727 D1750
304-028-02	LED YEL W/.425 SPACER TR	YEL	D1728-1729 D1751
304-029-02	LED GRN W/.425 SPACER TR	GRN	D103 D203 D303 D403 D503 D603 D703 D803 D903 D1003 D1103 D1203 D1303 D1403 D1503 D1603 D1701-1702 D1730-1749 D1754 D1764
311-002-00	X-SISTOR PNP SMD	IMBT4403	Q1703-1704
311-004-00	TRANSISTOR JFET SMD	J112	Q1705-1708
311-005-00	X-SISTOR NPN SMD	IMBTA06	Q1701 Q1709-1711
320-006-00	I.C. LINEAR SMD	NJM 2068	U1713
320-012-00	I.C. LINEAR SMD	NJM4560M	U101-105 U201-202 U301-305 U401-402 U501-505 U601-602 U701-705 U801-802 U901-905 U1001-1002 U1101-1105 U1201-1202 U1301-1305 U1401-1402 U1501-1505 U1601-1602 U1701-1712 U1714-1719 U1727 U1731-1735
323-002-00	I.C. QUAD COMPARATOR SMD	LM339	U1722-1726 U1728
400-005-00	CONNECTOR STR 40P .100 X 2		J1-3
400-031-00	CONNECTOR STR 20P .100 X 2		J5
400-043-00	CONNECTOR STR 26P .100 X 2		J4
400-048-00	CONNECTOR RTA 7P .156 X 1		P1
450-220-00	PCB, 1604 VLZ-MAIN		Z22
500-036-00	SWITCH 4PDT PUSH V SNAPIN	4P2T	SW107 SW207 SW307 SW407 SW507 SW607 SW707 SW807 SW907 SW1007 SW1107 SW1207 SW1307 SW1407 SW1507 SW1607 SW1703 SW1710
500-037-00	SWITCH 2PDT PUSH V SNAPIN	2P2T	SW101-106 SW108 SW201-206 SW208 SW301-306 SW308 SW401-406 SW408 SW501-506 SW508 SW601-606 SW608 SW701-706 SW708 SW801-806 SW808 SW901-906 SW908 SW1001-1006 SW1008 SW1101-1106 SW1108 SW1201-1206 SW1208 SW1301-1306 SW1308 SW1401-1406 SW1408 SW1501-1506 SW1508 SW1601-1606 SW1608 SW1701-1702 SW1704-1709 SW1711-1720
601-002-00	INDUCTOR, AXIAL	4.7UH	L1-16
620-023-00	FLAT CBL 4 PIN 3.5”		Z21
706-009-00	SPACER, NYLON, LED .385”		Z85
706-033-02	STDF SWAGE NO.4 X .555L F		Z23-42
760-107-00	BTN 2 COLOR 9X5MM		Z16-20 Z43-84 Z86-101 Z108-175 Z216
760-108-00	BTN 2 COLOR 9X9MM		Z1-15 Z232

HOME

055-249-00 REV A, power board

PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
040-341-00	DIS 18AWG 1015 GRN 2.5IN LGTM			P2
100-008-00	RESISTOR CF	20	5%	R4-5
100-028-00	RESISTOR CF	130	5%	R9-10
100-059-00	RESISTOR CF	2K7	5%	R7-8
100-061-00	RESISTOR CF	3K3	5%	R11-12
100-080-00	RESISTOR CF	20K	5%	R1
100-104-00	RESISTOR CF	200K	5%	R2 R6
110-059-00	RESISTOR CF	2K7	5%	R15-16
110-072-00	RESISTOR CF	9K1	5%	R3 R17
122-043-00	RESISTOR MF	5.6	5%	R13-14
220-002-02	CAPACITOR LYTIC RADIAL TAPE	47UF	10%	C1-2
220-003-02	CAPACITOR LYTIC RADIAL TAPE	47UF	10%	C4-5 C13
220-005-02	CAPACITOR LYTIC RADIAL TAPE	470UF	10%	C10-11
220-006-00	CAPACITOR LYTIC RADIAL	2200UF	10%	C12
220-007-00	CAPACITOR LYTIC RADIAL	100UF	10%	C3
220-023-00	CAPACITOR LYTIC RADIAL	6,800UF	10%	C6-7
220-027-02	CAPACITOR LYTIC RADIAL TAPE	10UF	10%	C8-9
301-001-00	DIODE POWER	1N4002		D5-8 D10-19
301-003-00	DIODE POWER	1N5401		D1-4
302-014-00	DIODE ZENER	1N4756		D20
310-006-00	TRANSISTOR POWER NPN	TIP29C		Q1-2
321-008-00	I.C. ADJ POS 3 TERM VOLTAGE REGULATOR	LM317T		U2
321-009-00	I.C. ADJ NEG 3 TERM VOLTAGE REGULATOR	LM337T		U1
400-015-00	CONNECTOR STR 7P .156 X 1			P1
400-059-00	CONN QUICK DISC 250			E1-2
400-221-00	HDR 7P .156 LOCK KEY PIN6			P3
400-060-00	FUSE CLIP PCMT			Z4-5
450-249-00	PCB, 1604 VLZ II POWER SUPPLY			Z3
510-002-00	FUSE 5X20	.5A		F1
706-008-00	STANDOFF, SWAGE 4-40 X .34”			Z1-2

HOME

080-120-00 Power supply subassembly, 120V

PART NO.	DESCRIPTION	VALUE		REFERENCE DESIGNATORS
040-090-00	DIS 18G 1007 GRN 10 LUGX2	A		1
040-151-00	DIS 18GA 1015 GRN 8IN LG	A		1
040-341-00	DIS 18G 1015 GRN 2.5 LGTM	A		1
055-249-00-01	PCB ASSY PS 1604VLZ PRO	A3	A1	1 See page 18 for details
080-028-00	SA XRMR 1604VLZ 120V	A		1
400-009-00	IEC W/FUSEHOLDER	A		1
410-002-00	INSL SILPAD .007 SELF ADH	A		2
500-013-00	SW RCKR SPST 6A PWR SFTY	A		1
500-016-00	SW RCKR SPST 6A/250V	A		1
510-001-00	FUSE SB 1A 5X20MM 250V UL	A		1
550-154-00	TRANSISTOR BAR - SR24.4	B		1
550-171-00	BRACKET POWER - 1604VLZ	B1		1
550-208-00	SHIELD OUTER PS - 1604VLZ	A		1
611-014-00	WIR 18G 1010 BLK 1.75 ST2	C		1
700-006-00	MCH 6-32X1/4 PHP BLKZC	A		1
700-011-00	MCH 4-40X1/4 BTNSKT BLKOX	A		2
700-035-06	TF 6-32X1/2 PHP CLRZC	A		2
700-037-04	MCH 8-32X3/8 FLT 100DG ZC	A		4
705-001-00	KEPNUT 6-32	A		3
730-001-00	THERMAL JOINT COMPOUND	A		AR
730-009-00	ADHESIVE CLEAR	B		AR
740-009-00	GROMMET RUBBER .437ID	A		0.5

HOME